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ABSTRACT

The guide proposes an elementary through high school program encompassing many aspects of traffic safety. Chapter 1 presents definitions, instructional goals, behavioral objectives, and K-6 traffic safety concepts coupled with student performance indicators. Various elements of program administration are covered in Chapter 2. Chapter 3 includes concept and student performance indicator charts for a traffic safety curriculum designed to inculcate desirable driver behavior in students. The five program sections are: the driving task, the readiness task, highway emergencies, transportation systems, and improvement tasks. Use of instructional media and programs for the handicapped are described in the next two chapters. Chapter 6 outlines motorcycle safety education and contains a chart of concepts and student performance indicators for motorcycle operation. Similar charts are included for Chapters 7 and 8 which deal with alcohol and drug abuse and air pollution. Appended are: a list of events in the history of vehicular traffic, a chart of action words and phrases for use in driver training (grouped by concept with description or activity and teaching tips), California Laws and Regulations affecting traffic safety education, and forms for use in driver education. A 124-item reference list of books and audiovisual materials concludes the guide. (Author/MS)

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California Guide to Traffic Safety Education

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NATIONAL INSTITUTE OF
EDUCATION

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Foreword

The problems associated with the bicycle, the motorcycle, and the automobile are with us, growing, and predictable:

- From 1965 to 1972 bicyclist fatalities in California increased by 177 percent, and bicyclist injuries increased by 168 percent. No other traffic accident category increased by a comparable percentage during the same period.
- California has as many licensed motorcycle riders today as the whole country had registered motorcycles 15 years ago. In 1973 a total of 507 motorcycle drivers in the state were involved in fatal accidents, and 10.3 percent of all accidents were attributable to motorcycle drivers. An estimated 20 percent of the persons involved in motorcycle crashes were riding for the first or second time.
- We have more than 900,000 teenage drivers of automobiles in California, and drivers under twenty-one have the highest frequency of accidents. In fact, teenage drivers average twice as many accidents as adult drivers.
- In 1899 a pedestrian was the first traffic fatality, and pedestrians today account for approximately 18 percent of California's fatalities in motor vehicle accidents. The largest number of those killed in 1973 were crossing a street at other than an intersection.

The statistics, it seems, are endless when one begins to examine the traffic safety scene. But that is understandable when we look at the problems and the waste associated with the wheeled vehicles we use to get from one place to another. The California Traffic Safety Education Task Force has concluded a two year study of these problems and has recommended a plan I am hopeful we can use in establishing a traffic safety program that will help us solve the problems, reduce the waste, and, most of all, help people save people.

The task force made the most comprehensive study of traffic safety ever conducted under the auspices of the California State Department of Education, and it has called for an approach to traffic safety education that parallels in many ways the recommendations of the Task Force on Early Childhood Education. For example, the traffic safety task force has called for education at the earliest possible age:

> A comprehensive traffic safety education program which teaches safety-related knowledges, attitudes, and behavior at the earliest feasible age and reinforces that early teaching throughout each citizen's lifetime is essential if reduced accident frequency and severity are to be achieved through education.

The traffic safety task force, like the early childhood task force, has called for parent involvement in the education of their children. The task force identified driver education, passenger safety, and pedestrian safety programs as those most in need of the parents' help.

The traffic safety task force also reminds us that our safety programs must be wide in scope—must involve everyone. In fact, according to the data that have been compiled, it is not the so-called "negligent" driver who accounts for the major portion of accidents; it is the driver who makes an error in perception or decision that creates the overwhelming problem on the streets and highways of our state. For example, the task force points out in its report that "negligent operators comprise 1.6 percent of all drivers [in California] and are involved in 5.2 percent" of the accidents in the state. "Since they are small in number," the task force says of the negligent drivers, "efforts confined solely to that group cannot produce a dramatic impact on the fatal accident problem."

Although the *California Guide to Traffic Safety Education* was not produced in direct response to the recommendations of the California Traffic Safety Education Task Force, it presents in many respects a program of the scope the task force has envisioned for the people of California—a program for those who make errors in driving and walking. It certainly goes far beyond its predecessors, which date back to 1948. In fact, all four of the preceding guides were entitled *Driver Instruction* and were concerned with teaching high school age students to drive safely. As you will note from its contents, this new guide recommends to school districts a program involving almost all aspects of traffic safety—from the elementary school through the high school—and the guide includes separate sections on alcohol and drugs and air pollution. Thus, it proposes a traffic safety education program wide in scope and geared to the problems we must face in these troubled times.

I believe in the power of education to solve these people-created problems that continue to wound our lives and our land. I also believe, however, as I look around at automobiles and people and motorcycles and people and exhaust and freeways and bicycles and people all moving somewhere, that it will take more than the teaching of skills or the imparting of knowledge to save lives and preserve the land. It will take change demanded by a society well informed of the consequences of its actions or its ignorance.

Wilson Riles

Superintendent of Public Instruction

Preface

First in 1948, then in 1953 and again in 1958, and finally in 1965 the California State Department of Education produced four different editions of *Driver Instruction*. Each edition represented an improved guide for the teaching of driver education and driver training. However, when the writers for the 1976 guide began to develop their materials, it was soon obvious that "driver instruction" would not be an appropriate title for this new publication. Although driver instruction is still a most important part of the guide, the scope of the material treats the whole area of traffic safety.

While the four preceding guides dealt almost exclusively with teaching high school students to drive an automobile safely, the new guide begins with a chapter on safety instruction at the elementary school level and ends with a chapter on air pollution. Major chapters are also devoted to safe driving programs for the handicapped, motorcycle safety education, and the effects of alcohol and drugs on drivers.

The publication was prepared under the direction of LeRoy R. Georges, Consultant in Driver Education. Mr. Georges was assisted in his task by many contributors and reviewers whose names can be found in the acknowledgments. A person who made a particularly significant contribution was John S. Urlaub, past president of the American Driver and Traffic Safety Education Association and the California Driver Education Association.

The Department of Education is grateful to the many instructors in driver education and to those outside the teaching profession who have contributed to the development of the *California Guide to Traffic Safety Education*. The Department is particularly grateful to the Automotive Safety Foundation for permission to draw information from one of its publications, the *Resource Curriculum in Driver Education and Traffic Safety Education;* to the state supervisors of driver education who provided printed resource materials; to Joe Reynolds and his staff in the Los Angeles Unified School District for the development of Chapter 5, "Programs for the Handicapped"; to participants in the Orange County Alcohol and Safety Project for information provided for Chapter 7, "Alcohol and Drugs"; and to the California Air Resources Board for material provided on air pollution.

WILLIAM E. WEBSTER
Deputy Superintendent
for Programs

REX C. FORTUNE
Associate Superintendent
for Secondary Education Programs

EDWARD L. BISPO
Manager, Secondary Education
Consolidated Field Services

ACKNOWLEDGMENTS

Those who contributed to the development of the *California Guide* or who reviewed it after it had been developed are the following:*

Contributors to the Guide

Bolt, Jack L., Fresno Unified School District
Branson, Lon, San Juan Unified School District
Burgess, Raymond, Pajaro Valley Unified School District
Burns, Robert, Huntington Beach Union High School District
Christie, William E., Anaheim Union High School District
Christie, William F., San Diego City Unified School District
Cole, William M., California State University, Los Angeles
Colgan, Wesley, City of Santa Rosa High School District
Conrad, Thomas, California State Automobile Association
Davis, Jay, Los Angeles Unified School District
Devine, John E., California Health and Welfare Agency
Eisenberg, Paul, San Rafael City High School District
Ellis, Dave, Fresno Unified School District
Evraets, John, Chico Unified School District
Kaywood, Richard, California State University, Long Beach
Kurlich, Jerry, Los Angeles Unified School District
Lawitzke, Dick, Carmel Unified School District
Lee, William, Los Angeles Unified School District
Lunsford, Walter C., California State Department of Education
Luster, John, El Dorado Union High School District
Marty, John D., Fullerton Joint Union High School District
Meadows, Richard, San Juan Unified School District
Newhard, William W., Fullerton Joint Union High School District
Nicholson, Richard, Alhambra City High School District
Parks, Jack, San Juan Unified School District
Pebbles, Lewis B., California State Department of Education
Plum, Richard F., Huntington Beach Union High School District
Rector, Donald W., Los Angeles Unified School District
Reynolds, Joe, Los Angeles Unified School District
Rowe, Dennis, Southern California Automobile Association
Schroeder, Melvin T., Orange County Alcohol and Safety Project
Schafer, John R., Los Angeles Unified School District
Schafer, Michael, Orange Unified School District
Sim, Leslie W., Anaheim Union High School District
Sprague, Thelma, San Diego City Unified School District
Strang, Earl D., Claremont Unified School District
Tindall, Warren, Arcata Union High School District
Ulterino, Mrs. Pat, Lung Association of Sacramento

Reviewers of the Guide

Berra, Carl, Kern Joint Union High School District
Darland, Edward, San Jose State University
Detambel, Marvin, California State Department of Education
Eales, John R., California State Department of Education
English, Fred, Los Angeles Unified School District
Klumb, John J., California State Department of Education
Liskey, Nate, California State University, Fresno
Lucarelli, Luke, California State University, San Diego
Morris, Russell, California State University, Chico
Probst, Alan, California State University, Long Beach
Scherer, Ben, California State University, Los Angeles
Sparks, Clinton, Chapman College
Spence, Dean, Southern California Automobile Association
Sprague, Thelma, San Diego City Unified School District
Tappie, Henry, Las Virgenes Unified School District
Terry, Robert L., California State Department of Education
Treco, George, California State Department of Motor Vehicles
Ward, Ray, California Office of Traffic Safety
Wright, Stuart, California State Automobile Association

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CHAPTER 1

INTRODUCTION TO TRAFFIC SAFETY EDUCATION

Licensing requirements established by the California Legislature for drivers under eighteen years of age place the major responsibility for driver education, in both the classroom and laboratory phases, on the high schools.

California became officially involved in driver education as early as 1947. Statutes set forth in the Education Code provided for the establishment, conduct, and scope of an automobile driver education course in the public secondary schools (see Appendix C). In 1966 the National Traffic and Motor Vehicle Safety Act required that each state, in order to qualify for Federal Highway Funds, must establish a comprehensive highway safety program, with driver education as one of its components.

In the last two decades, driver education has enjoyed a phenomenal growth both in number of schools offering driver education and in the number of students enrolled. Major deterrents to its expansion have been (1) an already crowded curriculum; (2) the fact that the subject has been deemed nonacademic; and (3) the cost of operating the laboratory phase.

Definition of Terms

The following are terms that are frequently used in traffic safety education.

Adult program–A district-supervised driver education program for beginning drivers who are not subject to compulsory school attendance.

Driver education (classroom)–That part of driver education conducted within the classroom in which conventional teaching methods are used, such as lectures, discussion, and visual aids. The course is essentially textbook-oriented but is not necessarily limited to this form of instruction.

Driver's license—A license issued by the Department of Motor Vehicles to a qualified individual (a qualified person must have satisfactorily completed a driving road test) sixteen years of age or older permitting the person to drive a motor vehicle on the streets and highways of California.

Driving range-multiple car—That part of driver education-laboratory experience which uses a number of cars on an off-street practice area for the purpose of helping students develop driving skills and experience a "traffic mix" situation.

Dual-control car—A motor vehicle equipped with special safety and instructional equipment as required by established regulations.

Four-phase program—An instructional plan that utilizes classroom, on-street, simulation, and multiple-car range practice, generally incorporated into one complete program.

Instruction permit—A license issued by the Department of Motor Vehicles to a qualified individual (one who has satisfied state requirements on vision, rules of the road, and financial responsibility) permitting the person to drive a motor vehicle when accompanied by a California licensed driver who is eighteen years of age or older and who is occupying a seat beside the driver.

Laboratory phase of driver education (behind the wheel)—That part of the program providing actual driving instruction in a dual-control car on roadways, on multiple-car driving ranges, or within a simulator system. The term *driver training*, as may occur in any reference in the Education Code or Department of Motor Vehicles handbook to driver training, shall be synonymous with *laboratory phase of driver education*. (*Laboratory phase of driver education* will be used throughout the guide except when the Education Code, Vehicle Code, or other specific reference retains the term *driver training*.)

Observation time—Student time spent as an observer in the dual-control car while another student is receiving behind-the-wheel instruction.

Psychophysical tests—A number of mechanical devices used to measure certain sensory and physical skills related to driving.

Qualified instructor—A person who meets the minimum teacher qualification requirements as stated in the Education Code of the state of California.

Safety education—A comprehensive instructional program encompassing all grade levels designed to develop within individuals certain knowledges and attitudes directed toward accident reduction. Traffic safety is one segment of the total safety program.

Simulation program—An approved driving simulation system as an integral part of the laboratory phase of instruction. As presently constituted, four hours of simulator experience may be substituted for one hour of in-car practice.

Simulator—An electromechanical device designed to represent the driver's compartment of the automobile. By the use of films, students are presented with simulated driving situations. Student responses are indicated on a recording device. Students thus gain experience in gathering information, making decisions, and executing their decisions.

Student license—A license separate and distinct from the regular driver's license. It permits a student, when enrolled in an approved driver education laboratory course, to drive only at the direction and under the supervision of the course instructor.

Thirty-and-six program—A minimum instructional program required to satisfy the provisions of the Education Code. After successful completion of the program, consisting of 30 hours of classroom instruction and six hours of behind-the-wheel training per student, a school district may claim reimbursement with state funds.

Traffic safety education—This term has assumed a broader concept than the term driver education, although it incorporates all of the aspects of driver education. It involves exposure to learning experiences designed to help students become responsible traffic citizens and safe and cooperative users of motor vehicles.

Instructional Goals

It is fundamental in the educational process that there be a systematic plan directed toward achieving a recognizable goal. Learning is enhanced when objectives are within the reach of students and they understand what is expected in terms of performance. Students should be provided with opportunities to explore alternate methods of accomplishing an ultimate objective, such as attaining a satisfactory score on a given test.

There are differences of opinion on how extensively the plan should be structured. It has been strongly suggested that in the driver education framework, school districts be permitted to develop their own objectives and evaluation criteria. Performance indicators can be locally oriented, allowing students to perform in a real or familiar environment. On the other hand, goals should remain comparatively uniform for all district driver education programs.

Although the Department of Motor Vehicles' (DMV) road test may not be considered by many instructors as a valid measure of performance or a predictor of safe driving potential, it is a recognized instrument that measures the degree of driving proficiency that has been achieved.

The following plan may be used as a guide by the school districts to develop goals, objectives, and peformance indicators in the driver education program.

GOAL

Provide students with ample learning experiences that will allow them to perform safely in the transportation system. (Local conditions may permit deviation from the desired achievement by 90 percent of all students as mentioned below.)

BEHAVIORAL OBJECTIVES

1. Satisfactory achievement on teacher-prepared tests, standardized tests, and Department of Motor Vehicles' tests

   Performance Indicators:

   All students will master the basic information necessary for the safe and efficient operation of the motor vehicle.

   Ninety percent of the students will attain an equivalent grade of 70 percent or higher on teacher-prepared, standardized, and DMV tests.

2. Satisfactory completion of both classroom and laboratory phases of driver education

   Performance Indicators:

   Ninety percent of the students enrolled in the driver education classroom phase will satisfactorily complete the course.

   Ninety percent of the students enrolled in the driver education laboratory phase will successfully complete the course.

3. Satisfactory achievement on the school-designed dual-control car road test

   Performance Indicator:

   Eighty percent of the students will score 70 percent or above on the road test.

4. Satisfactory achievement on the DMV driving test

   Performance Indicator:

   The percentage of students passing the DMV test on the first attempt will increase each year until an average of 90 percent of the students will pass the test on the first attempt.

5. Satisfactory driving record during the three years following completion of traffic safety education

   Performance Indicator:

   The number of citations and accidents will show a substantial reduction during the second and third years of driving.

6. Reduction in the death rate per 100 million vehicle miles of travel per established standards

   Performance Indicator:

   The death rate per 100 million vehicle miles of travel will be reduced each year.

Behavioral Objectives

Teaching methods are in a constant state of revision. A structured program designed to communicate large numbers of facts representing areas of knowledge but having only limited relationship to actual performance is no longer valid. In the area of traffic safety, teachers must use the most effective approach to produce the desired behavior pattern. The individual must be able to perform well in the transportation environment. Acquisition of knowledge is more meaningful when the student is asked to respond to real-life situations.

A concept can be a "trigger word" or statement which sets in motion a series of ideas directed toward an area of performance. Behavioral change is an end product resulting from exposure to a series of stimuli. It may be the result of concomitant learning, whether piecemeal or sequential. One can have no positive assurance that acquisition of knowledge alone will produce the desired attitudinal change.

Attitudes can profoundly affect behavior, such as the fastening of seat belts or the maintenance of proper speed control on roads where very limited surveillance by law enforcement officers occurs. When positive attitudes about the importance of safety have been ingrained, reasonable assurance will exist that concomitant knowledge and skills will be manifested and satisfactorily demonstrated in the driver's performance, ultimately leading to safe driving habits.

The behavioral approach can have distinct value in (1) motivating the students; (2) helping teachers and researchers evaluate content, method, and process; and (3) creating a better understanding of an effective curriculum for traffic safety education.

Establishment of Objectives

Researchers have determined that there are definite steps in developing satisfactory student performance. They have also determined that, even though applied under divergent conditions, the results will be substantially the same. Those steps are as follows:

1. *Identify* the relevant clues.
2. *Predict* their significance.
3. *Decide* action to be taken.
4. *Prepare* to execute a decision (such as cover the brake).
5. *Execute* according to that decision.

Reasonable attempts will be made to state the objectives in readily measurable terms. It should not be inferred, however, that only immediately discernible factors affect a driver's behavior. Other factors may be identified and measured at some later interval of time. Impressions can be deep-seated. Some are latent and observable only in quite unrelated circumstances, particularly in the realm of attitudes, emotions, and values ascribed to the nebulous area of the affective domain. More readily measurable are behaviors of the cognitive domain involving mental and intellectual processes in addition to knowledge and evaluation. Most readily measurable are the neuromuscular and physical skills that involve different degrees of dexterity.

It is impossible to place a primary rating on any one factor as having the more relevant effect on the behavior pattern. Psychologists emphasize the interrelationship between cognitive and affective learning; hence, no factor can be identified as supreme. It is difficult to predict what effect either type of experience will have on any individual. Individual differences are important and must be recognized in the learning process. The competent instructor exposes his class to a variety of situations rather than a single experience. The challenge, therefore, is to present fundamental concepts in traffic safety education and give these concepts a major role in the curriculum. Presentation of concepts in driver education having wide application to traffic safety will provide greater assurance that the objectives of safe driving will be accomplished.

Behavioral objectives are to be stated in clear, concise statements expressing expected cognitive, affective, or psychomotor achievements after the completion of a specific unit of instruction.

Although all objectives are labeled as "behavioral," closer examination will reveal that two distinct types of behavior are represented. One type is immediate and close to that required in real-world performance. Another type of objective represents only proxy measures of real-world performance; these are termed "enabling objectives" because students acquire certain attributes which enable them to cope with real-life situations.

Development of Safety Habits

The most important function of basic safety education is the preservation of life and limb. Safe living must preempt all other goals and objectives traditionally established in the elementary and high school curriculum. Safety education should begin with the preschool child and continue throughout his formal education. After graduation the individual must assume a far greater personal responsibility to educate himself on safety. During the formative years the child learns to live in a complex society and to participate in and enjoy a variety of experiences. It is hoped that parents, teachers, and other associates will help develop in the student's behavior pattern a knowledge and understanding of safety practices which may be described as "safety consciousness." If the proper safety attitudes have been developed within the student's behavioral pattern, he will be better equipped to assume the responsibility of driving a motorized vehicle in our modern transportation system.

It is not within the scope of driver education to develop a detailed and comprehensive approach to the general safety program. However, traffic safety cannot be divorced from the overall safety curriculum, and the student should develop a safety consciousness that extends to all of his endeavors and is compatible with his daily environment.

The leading causes of death in children aged five through fourteen are accidents involving motor vehicles, drowning, fires and burns, firearms, falls, machinery, and poisoning, as ranked in order of frequency. Collisions with pedestrians and bicycles are the major contributors of automobile-connected deaths. More children between the ages of five and fourteen are killed by automobiles than by the other seven leading causes combined. This fact reinforces the importance of introducing traffic safety into the elementary curriculum. If one continues to break a safety rule, the laws of probability will prevail. It is axiomatic that the safe way is the right way.

All teachers in kindergarten through grade twelve have a duty and responsibility to incorporate effective safety instruction, particularly as it relates to the automobile. A course in safety should be an integral part of teacher preparation. It is well to remember the saying that "education is of little value unless the child lives."

Kindergarten through grade six. The elementary school can claim a substantial amount of credit for reducing the number of accidents among children. Teachers and administrators have generally accepted this responsibility and have integrated units in safe living into the daily school program, with no perceptible deviation from the basic fundamentals of instruction. On the contrary, if safety instruction is not included, the schools are not fulfilling their responsibility for educating the whole child. Actual practice in experiencing situations common to everyday living assists the student in responding in a safe and correct manner when he or she faces actual danger.

In anticipation of an ever-increasing role in preparing students to perform safely in adult life, elementary schools must initiate the process of acquainting students with their own motor and perceptual capabilities and their physical limitations. Although some time will elapse before the elementary student will reach legal driving age, it is not too early to acquaint the student with basic information pertinent to living in an automobile age, first as a pedestrian and later as a driver.

The chart beginning on page 6 is designed to furnish the elementary teacher with procedures for introducing the traffic safety concept into the total integrated school program. If the objectives listed are accomplished, the students will be better prepared to cope with the responsibilities of being a modern traffic citizen.

In school districts where there is a comprehensive safety program, the designated supervisor should take the initiative to acquaint the elementary teachers with the correct approach in order to prepare students for their later roles as driver education students and eventually as licensed drivers.

Grades seven through twelve. Driver education is unique among all subjects in the secondary school curriculum in that it is based on a single exposure, with the comprehensive program scheduled in less than one semester's time. It is not unusual for schools to schedule a "crash" program lasting six weeks. A program that is administratively expedient may not necessarily provide the sequential and extended-time aspects necessary to achieve terminal objectives and develop the desirable behavioral attitudes toward safe driving. Since the student's time of enrollment in driver education is so limited, it is imperative that the program be planned and conducted efficiently to accomplish the desired objectives. It is particularly important that each student receive the maximum possible behind-the-wheel time. It is not valid to log 15 minutes of driving time for each of four students within a one-hour period.

The teacher should encourage students to acquire the maximum amount of legal practice possible. The teacher should inspire students to perfect their driving competency to the highest possible level. A student's apparent apathetic attitude to driver education may further be attributed to its assignment in some districts as a noncredit course. As a result, the school does not include driver education results in computing a student's grade point average. When such instances prevail, a stigma develops whereby students do not identify achievement in driver education with superior academic achievement. Driver education is subject to a reevaluation of its potential academic status.

Students are subject to constant evaluation by the community. Those who have completed the driver education courses are placed in positions of immediate surveillance and appraisal by the public. Their traffic behavior is readily observable as they use streets and highways.

ELEMENTARY TRAFFIC SAFETY

Concept	Student performance indicator	
	Kindergarten—grade 3	Grades 4—6
Identification of personal abilities and limitations		
Body image	The pupil will be able to touch and name his own body parts.	
Directionality	Given 12 specific examples of directional activities, the pupil should be able, orally or physically or in written form, to perform the activities with an 80 percent degree of accuracy.	
Large-muscle coordination	The pupil will be able to use two or more body parts at the same time in at least two different combinations.	
Adapting to environment	The pupil will be able to execute the activities called for without falling down.	
Eye-hand coordination	The pupil must be able to accomplish 80 percent of the following skills: 1. Coordinate eye-to-hand movements in concrete situations. 2. Make the hand work in relation to the eye in activities that use eye-to-hand small-muscle control, such as cutting with scissors. 3. Reproduce through different media difficult patterns of lines such as the completion of bead patterns and puzzles. 4. Reproduce patterns that consist of variables. 5. Be aware of the one-to-one relationship of objects. The pupil will be able to accomplish, with 80 percent accuracy, a series of paper-pencil skill activities.	
Visual discrimination	Given the elements found in the traffic environment, the pupil will be able to discriminate visually among the physical components. When requested, the pupil will be able to sort objects according to size, shape, and color. Using templates, the pupils will be able to complete a square, triangle, and circle without more than one-half inch deviation from the template design.	Having experienced a series of exercises concerning shape discrimination and symbol recognition, the pupil will be able to interpret 80 percent of the shapes and symbols used in the traffic environment. The pupil will be able to discriminate and identify all the shapes in the template drawings. Presented with safety signs and corresponding activities, the pupil will be able to identify visually and name 80 percent of the given signs.

ELEMENTARY TRAFFIC SAFETY (continued)

Concept	Student performance indicator	
	Kindergarten—grade 3	Grades 4—6
Visual discrimination (continued)	The pupils will be able to trace the patterns drawn with the templates without more than one-half inch deviation from the original lines. The pupil will be able from memory to draw the template shapes without more than one and one-half inch deviation from the original template shape. The pupil will be able to identify the colors red, yellow, green, black, blue, and white. The pupil will be able to identify, match, and name triangles, squares, and circles according to size and color. Through a series of sequential activities dealing with identification of simple shapes, the pupil will acquire basic knowledge of specific signs, signals, and their messages.	
Time-space relationship	The pupil will be able to apply the one-block rule in an actual street situation.	Given specific traffic situations in two and four lanes, the pupil will be able to select ten- and fourteen-second gaps in the flow of traffic. The pupil will be able to select accurately the distance between cars that will allow the maximum time to cross a street. The pupil must be able to count in one-second intervals; i.e., one-thousand-one, one-thousand-two, and so forth. The pupil must be able to determine the time required to cross a street. Approximate time is as follows: *4-lane street:* 12 to 14 seconds *2-lane street:* 10 seconds *1-lane street:* 6 to 8 seconds The pupil must be able to judge the time that an object (car) will take in passing a predesignated point. Having experienced several activities concerned with the relationship of time, distance, and speed, the pupil will be able to do the following: 1. Read and interpret a bar graph detailing the distance a car covers in one second. 2. Calculate the relationship between speed, reaction time, braking distance, and stopping distance. 3. Calculate how far a car travels in a second.

ELEMENTARY TRAFFIC SAFETY (continued)

Concept	Student performance indicator	
	Kindergarten—grade 3	Grades 4-6
Time-space relationship (continued)		4. Given specific information, determine mathematically which car travels the farthest distance. 5. Given specific information, determine mathematically which car travels the shortest distance. 6. Mathematically assess speed, time, and distance relative to automobiles and pedestrians in specific situations.
Eye tracking	The pupil will be able to accomplish 85 percent of the eye-tracking exercises presented to him.	
Light energy	Having participated in a series of activities concerned with light, the pupil will be able to state verbally five major characteristics of light energy.	Having participated in a series of exercises dealing with light, the pupil will be able to describe its nature and importance in night vision. The pupil should be able to demonstrate the advantages and limitations of reflective clothing.
Sound discrimination	Utilizing everyday experiences with sounds, the pupil will be able to distinguish between listening and passive hearing. When presented a complex traffic-sounds environment, the pupil will be able to make an auditory differentiation between a significant traffic noise and an insignificant background noise. Relying on auditory discrimination, the pupil will be able to match a specific animal sound to the appropriate animal. The pupil will be able to distinguish between loud and soft sounds in a complex sound background. The pupil will be able to state orally three characteristics of sound. Utilizing everyday experiences with sounds, the pupil will be able to distinguish between active listening and passive hearing. The pupil will be able to make an auditory differentiation between a significant traffic noise and an insignificant background noise in a complex traffic-sounds environment. Relying on auditory discrimination, the pupil will be able to distinguish the correct pitch of a given sound; e.g., high-low, loud-soft.	Having experienced several learning activities, the pupil will be able to describe the nature of sound to the satisfaction of the teacher. Having experienced several activities dealing with sound, the pupil will be able to list five reasons why it is important to distinguish the characteristics of certain sounds.

ELEMENTARY TRAFFIC SAFETY (continued)

Concept	Student performance indicator	
	Kindergarten–grade 3	Grades 4–6
Pedestrian rules		Having experienced a series of activities involving pedestrian rules, the pupil will be able to state pedestrian rules and describe their importance.
Stopping distance		Having experienced a series of activities concerned with friction, speed, and stopping distance, the pupil will calculate the total stopping distance of a vehicle traveling at a given speed.
Skills of the vehicle passenger		
Bus-stop procedures	Having experienced a series of activities concerned with interpreting the recommended procedures while waiting at a bus stop, the pupil will be able to act out those procedures when asked to do so.	Having experienced the school-bus learning activities, the pupil will be able to demonstrate understanding of the procedures for waiting at the bus stop by stating or role playing those procedures.
Bus-entry procedures	Having experienced a series of activities concerned with knowing and interpreting the recommended procedures for entering a school bus, the pupil will be able to act out those procedures when asked to do so.	Having experienced the school-bus learning activities, the pupil will be able to demonstrate understanding of the procedures for entering a school bus by stating or role playing those procedures.
Bus-passenger procedures	Having experienced activities concerned with riding on a school bus, the pupil will be able to role play those procedures when requested to do so.	Having experienced the school-bus learning activities, the pupil will be able to demonstrate understanding of the procedures for riding on the school bus by stating or role playing those procedures.
Bus-exit procedures	When requested to do so, the pupil will be able to demonstrate the procedure for exiting a school bus and crossing the street under the direction of the bus driver.	Having experienced the school-bus learning activities, the pupil will be able to demonstrate understanding of the procedures for exiting the school bus by stating or role playing those procedures.
Seat belts	The pupil will be able to do the following: 1. Identify at least one advantage of wearing seat belts. 2. Identify at least one danger in not wearing seat belts. 3. Identify at least two objects that would be hazardous when left lying loose in a car. Through a series of activities, the pupil will be motivated to use light-colored reflective clothing when walking or riding on a bicycle at night.	

ELEMENTARY TRAFFIC SAFETY (continued)

Concept	Student performance indicator	
	Kindergarten—grade 3	Grades 4–6
Seat belts (continued)	The pupil will be able to describe three desirable behaviors of auto passengers. Through a series of activities and experiments, the pupil will be able to identify four valid reasons for wearing seat belts.	
Arrival at school in a motor vehicle	The pupil will identify the proper location at school for loading and unloading passengers, indicating why these areas are safe.	
Auto passenger procedures	The pupil will be able to describe three desirable behaviors of auto passengers.	The pupil will be able to state the advantages and disadvantages of head-support systems. The pupil will be able to (1) analyze several situations involving entering, riding, and exiting procedures; and (2) select the correct passenger procedure. The pupil will be able to state at least two advantages of wearing seat belts and demonstrate the validity of his or her statement. The pupil will be able to state the advantages and disadvantages of head supports in an automobile. Having witnessed correct auto passenger procedures, the pupil will be able to do the following: 1. State the procedures for entering and exiting a car. 2. Describe at least two valid reasons for wearing a shoulder harness. 3. Demonstrate correctly all procedures in a mock or real situation as outlined in the learning activities for entering, riding in, and exiting from a car.
Trip planning		Through a series of map skill exercises, the pupil will be able to do the following: 1. Calculate mileage by using a map. 2. Compute average miles per gallon of gas. 3. Compute trip travel time by reading a map and calculating miles per hour. 4. Locate five cities, towns, and villages by using a map index. 5. Decide on a safe route from home to school. 6. Interpret map legends. Having reviewed a series of training activities, the pupil will be able to do the following: 1. Locate cities and towns by using a map index.

ELEMENTARY TRAFFIC SAFETY (continued)

Concept	Student performance indicator	
	Kindergarten—grade 3	Grades 4–6
Trip planning (continued)		2. Calculate mileage and travel time by the use of a map or from given situations. 3. Calculate miles per gallon of gasoline. 4. Compute reaction time and stopping distance of specific situations.
Bicycle riding		
Definition of a bicycle	The pupil will be able to distinguish between a vehicle for street use and off-street use.	
Bicycle activities		The pupil will be able to complete with 80 percent accuracy 80 percent of the activities dealing with the operation of the bicycle. The pupil will be able to identify the laws and ordinances that govern the use of the bicycle in the traffic environment. The pupil will be able to complete with 80 percent accuracy 70 percent of the activities dealing with bicycle safety.
Identification of unsafe vehicle operators		
Operator fitness	After observing traffic events adjacent to the school, the pupil will be able to identify unsafe driver actions.	The pupil will be able to identify and appraise the physical and mental factors that influence the behavior of highway users.
Alcohol		The pupil will describe what happens to alcohol in the body from ingestion to elimination and its effects on the driving task.
Drugs		The pupil will classify specific types of drugs and explain their effects on bodily functions and possible consequences for the motor vehicle operator.
Emotions		The pupil will summarize the nature and effects of the emotions on motor vehicle operators.
Fatigue		The pupil will predict the effects of fatigue on human functions and operator performance.
Handicaps		The pupil will identify types of handicaps that may affect the operation of a motor vehicle.

ELEMENTARY TRAFFIC SAFETY (continued)

Concept	Student performance indicator	
	Kindergarten—grade 3	Grades 4–6
Age factors		The pupil will describe the aging process and how it may affect operation of a motor vehicle.
Vision		The pupil will describe the function of the eyes and will classify the types of eye functions and their importance to the safe operation of a motor vehicle.

Courtesy of California Highway Patrol

It is not the so-called "negligent driver" who causes most automobile accidents; it is rather the ordinary driver who makes an error in perception or decision.

CHAPTER 2

ADMINISTRATION OF THE TRAFFIC SAFETY PROGRAM

Driver education, a comparatively new addition to the standardized high school curriculum, has grown steadily and improved in quality. It is generally accepted as a required curricular offering, although in some school districts it is still found expedient to schedule classes at times outside the regular school day.

Driver Education in the Classroom

The general provisions of Section 10020 of the California Administrative Code, Title 5, Education, govern the establishment, conduct, and scope of, and establish standards for, automobile driver education in high schools. Education Code Section 8571 (j) prescribes that classroom instruction in automobile driver education shall be offered by all high schools. This section also requires that the classroom course include the following areas:

Personal responsibility
Major causes of accidents
The driver
Natural forces affecting driving
Signs, signals, highway markings, and highway design features which require understanding for safe operation of motor vehicles
California Vehicle Code, rules of the road, other state laws, and local motor vehicle laws and ordinances
Differences in characteristics of urban and rural driving, including safe use of modern expressways
Critical vehicle systems and subsystems requiring preventive maintenance

Pedestrian safety
Effects of alcohol and drugs
Motorcycle safety

Curriculum Development

Innovative learning methods and practices should be under the immediate control of a resourceful, knowledgeable supervisor and/or instructor. Subject content should never be changed or sacrificed solely for change in method of presentation. Automation and programmed instruction will not replace the teacher; however, effective equipment and facilities can improve teaching effectiveness.

Whenever an innovative approach generates an inquiring atmosphere or challenges the students to search for relevant answers, it should be encouraged and pursued in depth. The essential task is to stimulate the students' minds so that the students will be able to discover on their own the desirable attitudinal objectives in traffic safety. It is the teacher who must assist in the selection and coordination of materials and methods which will best meet the desired interaction and student needs during the learning process. Programs should be evaluated on the basis of being effective rather than being merely innovative.

Scheduling Classes

Scheduling of the classroom phase of driver education should conform to established policies for other subjects within the curriculum.

When driver education classes are scheduled only at times before or after the regular school day, the subject has been relegated to a position of somewhat lesser importance than other curriculum offerings. After school, fatigue interferes with maximum effectiveness of teaching and learning. Student needs should supersede scheduling convenience, and achievement of educational objectives should take priority over fulfillment of licensing or state requirements. Schools have a responsibility to students who have no time available other than during the regular school day.

The comprehensive driver education program involves both classroom and laboratory instruction. It is recommended that, if scheduling permits, students participate in both phases concurrently. The total program should be completed during the same semester. Classroom instruction must always precede or be concurrent with the laboratory phase. Scheduling should be arranged to permit students equal opportunity to complete the instruction when they have just reached or are closely approaching the legal driving age. The most common age at which students are enrolled in driver education is fifteen years (in the tenth grade). The course should also be made available to other students enrolled in grades eleven and twelve.

Section 18252.3 of the Education Code specifies that the classroom driver education shall:

(a) Be of at least 2½ semester periods and shall be taught by a qualified instructor;
(b) Provide the opportunity for students to take driver education within the regular schoolday, and within the regular academic year, as defined in Section 5554. Additional classes may be offered at the discretion of the local school district governing board, the county superintendent of schools, California Youth Authority, and the State Department of Education, to accommodate those who have failed or those who cannot otherwise enroll in the regular schoolday program. For purposes of this section, the regular schoolday shall be that time during which classes are maintained in the courses of instruction provided for in Division 7 (commencing with Section 7501) of this code; and
(c) Be completed by the student within the academic year or summer session in which it was begun.

The driver education course shall include a minimum of 30 clock hours of instruction, exclusive of the student's passing (transition) time between classes.

Evaluation of Student Progress

Psychophysical tests will be discussed from the standpoint of purpose and function in the driver education program. Psychophysical testing is used to study individual differences, limitations, physical fitness, and compensation. The tests may detect apparent differences but do not measure the degree and extent to which the variations exist. The teacher should never attempt to diagnose a student's physical defects. The teacher can discharge his duty by referring the student to the school nurse or, if that approach is impractical, to a medical doctor chosen by the family. It is particularly important that the teacher does not exceed his competency or authority but does exercise his moral and legal responsibilities as a professional teacher.

Intangible factors can profoundly affect the benefits to the individual student and the class discussion. A student's physical deficiencies should not be divulged. The student's individuality must be respected. However, a general discussion of individual variations such as visual factors—acuity, peripheral vision, color vision, and glare recovery—can help students appreciate the importance of defensive driving. The driver education laboratory instructor should have pertinent information about individual students prior to the beginning of in-car driving.

It is strongly recommended that the testing devices be purchased by the school district and that they be kept in perfect working condition. Devices designed to measure certain physical characteristics should be placed high on the priority list. The physical characteristics are visual acuity, sample reaction time, depth perception, peripheral vision, and night vision.

Teachers should emphasize that the great majority of drivers who are aware of a physical deficiency drive within their limitations and consequently have an above-average or excellent driving record. Teachers should also be aware that with the introduction of student licenses, students may be scheduled into the laboratory phase of driver education who may not have had an adequate vision screening test. Consequently, the teacher's responsibility for providing the basic psychophysical testing becomes increasingly important. (In such cases, the school nurse should be requested to administer the screening tests.)

No student shall receive more than two hours of classroom driver education nor more than two hours of laboratory phase of driver education (including observation time) during any 24-hour period.

As they participate in a cooperative endeavor, the administration, the teacher, and the community can develop a practical program of driver education worthy of imitation. Each segment must perform a definite function, provide support, and give guidance and specific direction to the comprehensive driver education program. The community and school administration must cooperatively provide the foundation and standards of operation. However, it is the well-qualified, conscientious, imaginative, and dedicated teacher who will make the program function. The teacher must instill in students the concepts of safe driving by precept and example.

The following criteria may be used as a basis for evaluating existing programs:

1. The complete driver education course should be available to all students. Students are to be provided an opportunity to enroll at a time when their motivation is highest.
2. Scheduling arrangements should permit maximum coordination between the classroom and the laboratory phase of instruction.
3. Teachers should be assigned who have an interest in teaching driver education.
4. All teachers must be adequately trained in driver education.
5. When possible, teachers should devote full time to the driver education program.
6. A qualified administrator should be assigned as supervisor, director, or coordinator.
7. Driver education must be afforded equal status with other subjects taught in the curriculum.
8. Driver education classes must have facilities and equipment comparable to other academic class offerings.
9. The administration must recognize driver education as a dynamic field of study having a direct and vital effect on the total life of the community.
10. Instructors must be well-informed, join and participate in professional associations, and attend activities that will upgrade their teaching effectiveness.
11. The community must be willing to support a quality program.
12. Credit toward graduation should be given for all satisfactorily completed work.
13. Teacher load should be comparable to that of other staff members.
14. When possible, an administrator should be assigned responsibility for coordinating the kindergarten through grade twelve traffic safety program.
15. The school must have a course of study prepared by the driver education department and approved by the school administration, incorporating state guidelines as presented in this publication.
16. The major part of all driver education classes should be conducted during the regular school day.
17. Driver education should be a separate course, should have a distinctive title, and should not be integrated within another subject field.
18. A specific plan should be developed to involve the parents directly in assisting with the laboratory phase of instruction.
19. The program should exceed minimum standards and should provide ample time for

students to achieve the behavioral objectives presented in this guide.

20. An evaluation plan must be established and implemented to determine course effectiveness.

Driver Education in the Vehicle

The Education Code provides for the establishment of driver education (classroom) and driver education laboratory (in-car) instruction. (California legal provisions relating to driver education are found in Appendix C.)

Successful completion of both the classroom and in-car phases of driver education is required for driver licensing at the age of sixteen; otherwise, the legal licensing age is eighteen. Consequently, a high percentage of students complete the courses prior to eighteen years of age. A substantial insurance reduction on certain types of coverage provides an additional incentive for completing the course.

Budgeting and Insurance

Driver education operations, particularly those involving the in-car phase, have interbudgetary features unique to this area of instruction. A school district representative must be responsible for the purchase, lease, or loan of the driver education automobiles. Occasionally, the driver education supervisor or teacher in charge of the program may be more familiar with the complexities of the program than the district's financial officer. In such cases the teacher can render valuable assistance. Instructional aids which may involve a considerable initial financial outlay are driving simulators, multimedia equipment, and, in some cases, the construction and development of a multicar driving range. The instructor's expertise can determine the advisability of either the purchase or rental of the equipment and may finally result in substantial financial savings for the school district.

The type of instructional equipment to be installed should be planned and developed in accordance with anticipated student enrollment and the school district's educational objectives. Generally, when the driver education staff shares in the decision-making process, the quality of instruction is upgraded.

The administration must provide ample liability insurance protection for all members of the instructional staff. In addition the district should protect the equipment and the interest of the dealer who lends the cars. Insurance counselors should keep coverages consistent with current standards. Minimum suggested coverages are as follows:

Public liability	$500,000–1,000,000
Property damage	$50,000
Medical	$10,000
Deductible collision	$50

Comprehensive insurance (fire, theft, vandalism, and glass breakage) should also be included.

Vehicle Procurement

Automobile manufacturers have supported driver education programs since 1936 when one manufacturer provided four cars to prepare high school teachers of driver education at Pennsylvania State College. The cooperation and support of manufacturers have expanded to the extent that today all of the leading manufacturers of automobiles and trucks are participating in driver education programs.

Currently, over 40,000 vehicles are being provided by dealers for use in driver education programs at no cost to schools, parents, or taxpayers. An estimated 45 million high school students have received driver training in vehicles provided by automobile dealers.

The automobile industry supports the driver education program because traffic safety involves the highways, the automobiles, and the drivers. Driver education and traffic safety require the cooperative efforts of all levels of government, education systems, and private industries.

To qualify for driver education cars, a school must conduct a driver education course which meets all of the prescribed requirements of the State Department of Education as stipulated in the Education Code and the California Administrative Code, Title 5, Education. Additionally, school-level policies such as the following should be established:

1. Cars must be restricted to driver education purposes and operated under the supervision of a qualified teacher.
2. When several cars are needed, they should be provided by several dealers so as to broaden the base of participation and ease the replacement process.
3. Whenever possible, cars should be obtained from dealers located physically near the school.
4. Types of vehicles and equipment supplied must meet the standards of the California Administrative Code, Title 5, Education, Section 10042.

5. Arrangements between dealers and the district should be basically the same for all participating schools and dealers. These arrangements should include the following:
   a. One contract (or one set of agreements) for all cars used during the regular school year (see Appendix D for a sample contract)
   b. One contract (or one set of agreements) for all cars used in summer programs
   c. A checkoff report relating to car condition and equipment to be completed jointly by school and dealer representatives when the vehicle is delivered and when it is returned
   d. An agreement on the responsibility for purchase and installation of required equipment, such as dual controls, identification signs, extra mirrors, and vehicle numbers
   e. An agreement on the responsibility for registration, license plates, maintenance, and repair expenses
   f. Assignment of a single agent or agency for handling any difficulties or misunderstandings on the part of schools or dealers

After dealers and school personnel have reached mutually satisfactory agreements, all personnel involved in the program should be advised of the adopted arrangements. At this stage, both schools and dealers should authorize appropriate staff to implement the program, oversee maintenance and repairs, pay costs, and handle other operational details.

Thereafter, periodic meetings should be scheduled at which all concerned parties can discuss the program, make revisions if necessary, and prepare for future needs.

The cooperative effort of educational institutions and auto dealers to build a nation of better drivers deserves public recognition. The signing of loan agreements or the symbolic turning over of the "keys to the car" are newsworthy events, and the news media should be invited to attend the ceremonies. Some school districts arrange special functions (e.g., a dinner, banquet, or luncheon) at which participating dealers are recognized publicly for their assistance in the driver education program.

This kind of publicity helps to stimulate public awareness of, and support for, a vital part of the community's education environment. The overall goal is to work cooperatively toward development of competent and safe users of the streets and highways.

Vehicle Equipment

In order to ensure maximum safety and protection of students, all automobiles used for the laboratory phase of driver education must be equipped with the following:

1. Dual control approved by the California State Department of Education
2. Seat belts that conform to the requirements of the California Vehicle Code
3. Inside and outside rearview mirrors on both the driver's and the instructor's sides of the automobile
4. Heaters and ventilators as needed for the protection and health of the students and teacher
5. Tire chains, if the automobile is used in areas where the California Department of Transportation requires them or where local police or the California Highway Patrol recommend them
6. First-aid kits with instruction manual, safety flares, and either reflectors or flashing-light warning systems, all maintained in good condition and readily accessible
7. Tools and minor replacement items for emergency repairs

In addition to the requirements specified in California Administrative Code, Title 5, Education, Section 10042, driver training vehicles should be operated in compliance with the following:

1. The vehicle shall be appropriately marked to identify the car as a school driver education automobile. The dealer may place his name on either side and on the rear in letters not to exceed 1½ inches in height. Detachable roof signs, which are mounted safely, may satisfy the identification requirements.
2. All driver education cars provided by dealers on a free-loan basis must be used exclusively in the driver education program. They must not be used for such purposes as delivery of materials or transportation of students or staff to athletic events.
3. When district owned or leased cars are used for other than driver education instruction, all identification of the car as a driver training vehicle should be removed.
4. A regular maintenance schedule conforming to the manufacturer's warranty and dealer's request should be adhered to.
5. The instructor should safety check the vehicle prior to each day's driving session. Brakes,

steering, and all control devices should be maintained in safe working order. Any unsafe condition should be reported immediately to the responsible supervisor.

6. Any vehicle in such mechanical condition that it is in violation of the California Vehicle Code must not be used for instructing students to drive.

Driver Training Regulations

School districts have found it imperative to have an established set of regulations pertaining to in-car practice sessions. The regulations, which are essential to ensure effective instruction, good public information, and a maximum degree of safety, are as follows:

1. The instructor must occupy the front seat beside the driver while the car is in operation. When the car is unattended, the ignition key should be removed and the doors locked.
2. The car radio or tape recorder must not be used during any of the instructional time. Communication among the teacher, driver, and observers could be severely impaired if the radio or tape recorder are operating during the period of instruction.
3. Smoking must not be permitted in the driver education car.
4. Food and drinks should not be consumed in the car, and no part of the instructional time should be spent at snack bars or drive-ins.
5. Books and clothing should be placed where they will not obstruct vision.
6. A sensitive teaching atmosphere should prevail at all times.

Observation time is a valuable part of the total learning experience. Because the car is the counterpart of a classroom, a climate conducive to learning is essential and must be maintained at all times. Students should not have an opportunity to complete other class assignments, whether or not they are related to driver education, nor engage in idle visitation nor listen to the radio. The observer should be visually and mentally involved in the driving task, should be alert to all verbal instructions, and should profit from the instructor's evaluation of the driver's performance.

Recommended activities for the instructor include the following:

1. Maintain a checklist of the operating maneuvers performed by the driver, such as turns to and from a one-way street, stops and starts on a hill, entering and leaving a freeway, and so forth.
2. Develop a list of common errors made by the driver together with suggestions on how to improve his performance.
3. Keep a log of each student's driving time.
4. Develop a plan of driver rotation to vary each driver's experiences.
5. Have the observers assist the driver by providing verbal commentary on traffic conditions to assist the driver.
6. Encourage the observers to perform the driving maneuver mentally in consort with the driver.
7. Encourage students to be visually and mentally "driving" at all times, just as though they were behind the wheel.

Scheduling Classes

Section 18251.2 of the Education Code states that "Driver training shall be available without tuition to all eligible students commencing on July 1, 1969. The governing board of a district maintaining a high school or high schools, the county superintendent of schools, the California Youth Authority, and the State Department of Education may make driver training available during school hours, or at other times, or any combination thereof."

All students should have an equal opportunity to receive both classroom and in-car instruction during the semester in which they have just reached or are closely approaching the legal driving age. The majority of students will be scheduled to take the courses in the tenth grade.

Provisions should be made for students who elect to do so to enroll at a later date. Students shall be at least fifteen years and six months of age at the time of completion of the laboratory phase of driver education. (The requirement that students be not more than eighteen years of age when they enroll in a driver education course has been eliminated.) The scheduling of in-car instruction has presented some administrative problems, including the determination of student priority and the number of students to be accommodated. The course should be scheduled during the regular school day. It may be necessary to offer classes during summer school. Classes scheduled after school hours, during weekends, or during vacation periods should be considered a convenience for individual hardship cases. Summer school classes shall maintain the same standards of instructional time requirements and teacher qualifications as those conducted during the regular semester.

At least three students should be scheduled for each driving lesson. An absence will not disrupt the driving session because the students in attendance can absorb the scheduled driving time. At no time shall the instructor conduct instruction with fewer than two students in the car. The following are additional desired standards for laboratory instruction:

1. The course should be offered at such times as will provide every pupil an opportunity to enroll. An exclusive after-school program inflicts a definite hardship on students who are involved in extracurricular activities and those who are transported to and from school by bus.
2. The laboratory phase should normally be conducted concurrently with classroom instruction. If this approach is not possible, the laboratory phase should be scheduled immediately thereafter. In no event should the laboratory phase precede classroom instruction.
3. No pupil shall receive more than two hours of classroom driver education nor more than two hours of the laboratory phase of driver education (including observation time) during any 24-hour period without advance approval of the State Department of Education.
4. The complete course shall include a minimum of 30 clock hours of classroom instruction exclusive of passing time. The laboratory phase shall be in accordance with Education Code Section 18252.4 (see Appendix C). In accord with State Board of Education recommendations, the combined course shall not be conducted for a period of less than six calendar weeks. (For example, a schedule which includes three weeks of classroom instruction concurrent with two weeks of laboratory instruction is not permissible.)
5. Driving simulation systems or multiple-car driving ranges must be approved by the State Department of Education.
6. When integrated with the in-car phase of instruction, simulation is a highly desirable and practical scheduling procedure. When facilities are available, the driving range can be additionally integrated with the in-car and the simulation phases of instruction. When properly scheduled, the three phases of instruction should complement and reinforce each other.

Teacher Qualifications

State reimbursement for the laboratory phase of driver education is contingent upon the employment of instructors who have met the provisions set forth in certification requirements of the Education Code.

In general, the Education Code outlines the minimum requirements for a qualified instructor. Teachers are encouraged to complete additional courses related to traffic safety. In view of the country's rapidly changing transportation environment, it is imperative that teachers be kept apprised of current developments in transportation.

Inservice training workshops, conferences, seminars, and institutes provide opportunities for obtaining information that is readily adaptable to the classroom. Whenever possible, teachers should be given released time to attend and participate in such meetings.

Legal Requirements

The certification requirements for teachers of any or all phases of driver education are outlined in Education Code Section 18252.1.

> In applying for state reimbursement for driver training expenses incurred in the school year 1968-69 and thereafter, school districts, county superintendents of schools, the California Youth Authority, and the State Department of Education shall certify to having met the requirements set forth in this article and, in addition, shall certify that all teachers used in the driver education or driver training programs are qualified instructors therein, except that such certification shall not relate in any way to teacher certification or licensing.

A qualified teacher is further defined in Section 18252.2 as follows:

> A qualified instructor is one who has passed an approved driver's instruction examination and holds a designated subjects credential or who holds a valid prior credential authorizing instruction in automobile driver education and driver training.
>
> The Department of Motor Vehicles shall notify the State Department of Education immediately upon suspension or revocation of a qualified instructor's driver's license or upon placing a qualified instructor on probation to the Department of Motor Vehicles as a negligent operator. The Department of Education and the Department of Motor Vehicles shall jointly determine the details regarding procedures for notification. No reimbursements shall be provided to a school district, a county superintendent of schools, the California Youth Authority, or the State Department of Education for students taught by an instructor while his driver's license

is suspended or revoked, or while he is on probation to the Department of Motor Vehicles as a negligent operator, or while he is presumed pursuant to Section 12810 of the Vehicle Code to be a negligent operator, following notification by the State Department of Education to the school district, the county superintendent of schools, or the California Youth Authority, as the case may be, of such action.

Personal Qualifications

In addition to academic qualifications, a prospective driver education teacher should possess personal attributes or qualifications generally recognized as assets in this specialized area of instruction. Some of these qualifications are as follows:

1. A genuine desire to be involved in the teaching of traffic safety
2. A personal driving record serving as a model for students to emulate
3. Ability to instruct on a one-to-one basis and ability to recognize individual differences in ability and mechanical aptitude
4. Above-average ability to operate several types of vehicles satisfactorily
5. Some basic technical knowledge of what makes an automobile run
6. An overall basic knowledge of licensing, enforcement, and vehicle safety procedures
7. At least five years of safe driving experience (with a possible exception for the beginning teacher); a genuine interest in the traffic-accident problem of the local community, the state, and the nation; and a conscientious desire to improve the safe driving practices of the high school driver
8. A comprehensive knowledge of the driving task and ability to perform the task in an expert manner

The driver education laboratory instructor's performance is constantly on display before the critical eyes of the community. The automobile itself is the teacher's classroom. Neither students nor community should be afforded an opportunity to observe a teacher's disregard for traffic laws. Additionally, the teacher has an excellent opportunity to maintain a harmonious working relationship with the community's automobile dealers.

Teachers also have an opportunity to assist students in identifying and solving emotional problems that might interfere with their operating a motor vehicle in a safe and efficient manner.

In addition to holding the appropriate teaching credential, the teacher should participate in the following courses:

Required courses: basic driver education, general safety and accident prevention, and advanced driver education

Elective courses: automobile mechanics, adolescent psychology, audiovisual education, simulator training, first aid and rescue, and others

Teacher Responsibilities

One basic ingredient for success in any subject-matter field is an effective permanent staff. When conditions permit, the teacher should devote full time to the subject of driver education. An increasing number of prospective teachers are preparing to teach driver education and driver education laboratory classes exclusively.

The driver education teacher should carry a teaching load comparable to that of any other member of the staff. Unfortunately, on occasion these instructors have been requested to teach an additional class or assume an extracurricular responsibility on the basis that such an assignment would reduce the teacher-student ratio. Recommendations for the teaching load of driving instructors are as follows:

1. Instructors should not be scheduled for more than three consecutive class periods of in-car instruction.
2. A full-time instructor should have assignments in both the classroom and the in-car programs.
3. Extended school day instruction should not exceed two hours per day nor ten hours per week.
4. The total number of teaching hours required in summer should be the same as the number required in the regular school year.

An immediate and positive working relationship should develop between the school and the home when a student begins his driver education laboratory experience. This activity can also afford an excellent opportunity to develop a favorable public relations program. The principal responsibility rests with the instructor and the administrators who establish the standards of operation and program procedures. Administrators should carefully select personnel who perform well under close parental surveillance. Students are emissaries who communicate the strengths and weaknesses of both the teacher and the program to the home and to the community. A student opinionnaire should be administered upon completion of the course.

Budgeting Requirements

On or before October 1 of each year, the school district must submit the following information to the State Department of Education with regard to each person authorized to teach driver education or driver education laboratory:

1. Name
2. California driver's license number
3. Type of credential held
4. Date credential was issued
5. Number of semester units of credit completed

Information for all persons who teach driver education must meet these minimum requirements whether or not reimbursement is to be claimed by the school.

Reimbursement Procedures

The Driver Education Laboratory Instruction Program is reimbursable, as provided in the Education Code. Section 18251 provides that the Superintendent of Public Instruction shall allow to each school district maintaining a high school or high schools, county superintendent of schools, the California Youth Authority, and the State Department of Education an amount equal to the actual cost, but not to exceed sixty dollars ($60) per pupil instructed in automobile driver training during the preceding fiscal year (see Appendix C).

School districts are reimbursed on the basis of the number of students who complete the driver education laboratory phase of instruction. Reimbursement is made according to a schedule as stated in Education Code Section 17352 (a) (5) as follows:

> Warrants in the months of September to November, inclusive, shall include one-tenth of the estimated total amounts of the special purpose apportionment, as determined by the Superintendent of Public Instruction. Warrants in December shall include one-tenth of the amounts certified by the Superintendent of Public Instruction as the special purpose apportionment, as adjusted, if necessary, to correct excesses or deficiencies in the estimates made for purposes of the warrants in the months of September to November, inclusive. An additional one-tenth of the amounts of the special purpose apportionment shall be included in the warrants for the months from January to June, inclusive.

Districts participating in the program for the first time will receive their initial payment in September of the next fiscal year.

Excess cost for driver instruction includes the total current expenditures incurred for instructing pupils in automobile driver training in special classes, including, but not restricted to, automobile replacement, insurance, upkeep, and maintenance of automobiles used in such training. Driver education laboratory instruction shall be made available, without tuition, to all eligible students. Instruction may be offered during school hours, at other times, or any combination thereof.

Requests for reimbursement for excess cost in driver education laboratory instruction is made by the completion of Form J-22.2A, "Driver Training Cost Data Report," and Form J-22.2A-W, "Worksheet for Driver Training Cost Data Report." The completed forms are to be submitted to the Bureau of School Apportionments and Reports. The program must meet the standards prescribed by the Education Code as well as the rules and regulations prescribed by the State Board of Education.

A district may permit a student who has failed the course to repeat the laboratory phase during a subsequent fiscal year. The school district will receive regular reimbursement for this student. However, only one claim for a particular student may be submitted during each fiscal year. When a student elects to repeat the course, he or she must complete the laboratory phase of instruction. It is recommended that all first-time enrollees be given preference over those repeating the course.

Audit Records

All expense reports are subject to an audit by state auditors. It is essential that accurate records be maintained for at least three years and be readily available for audit. Reimbursement may be withheld from districts which do not meet the state requirements or are in violation of a major provision of the code.

In addition, schools may be visited without prior notice by consultants from Traffic Safety Education, California State Department of Education, for the purpose of monitoring and evaluating the effectiveness of the programs. Consultants are also available to assist school districts in upgrading programs or in resolving local problems.

Instructor License Requirement

Section 11100 of the Vehicle Code states: "No person shall operate a driver training school or engage in the business of giving instruction for hire in the driving of motor vehicles or in the preparation of an applicant for examination given by the department [Department of Motor Vehicles] for a driver's license, unless a license therefor has been secured from the department." Thus, a teacher may not give personal driving instruction for hire unless he holds a valid commercial instructor's license.

Innovative Programs

The State Department of Education may permit a deviation from the standardized program of instruction in driver education and driver education laboratory. A district that desires to alter the driver education program by using a modified approach in scheduling or instructional techniques must present the proposal to the State Department of Education for evaluation. When, in the opinion of the reviewing committee, the innovative project design has reasonable merit, the modification may be granted on a one-year, experimental basis. The approved project will be eligible for the regular state reimbursement during the approved time interval.

Districts are not free to deviate from the state-prescribed program without previous Department approval. Doing so will place the district in violation of the law and jeopardize its right to receive reimbursement.

Student Driving Licenses

The procedures for licensing students enrolled in the laboratory phase of driver education are outlined in the *Student License Manual*[1] issued by the Department of Motor Vehicles. It is imperative that administrators and instructors familiarize themselves with the various licensing forms and procedures and that there be full compliance with all legal provisions.

Student License

The student licensing forms were developed cooperatively by the Department of Motor Vehicles and the Department of Education, each of which derives essential information from these forms. Since laws relative to licensing regulations and procedures are subject to change by the Legislature, it is essential that the instructor be informed regarding current legal provisions. The administrator of each high school should appoint a person to discharge the responsibilities for licensing and other recordkeeping. Section 1.001 of Part XII of the *Student License Manual* states:

> The "Student License" issued by the schools with the cooperation of the Department of Motor Vehicles is separate and distinct from the regular driver's license. It permits a student in an approved driver training course to drive only at the direction and under the supervision of the course instructor.

The license must be issued to *all* students enrolled in the laboratory phase of driver education. Students must be over fifteen years of age and must be currently enrolled in or have completed satisfactorily the basic classroom course in driver education. Pupils must be at least fifteen years and six months of age at the time of completion of the driver education laboratory phase.

Applicants for the student licenses must meet satisfactorily the established physical and mental qualifications as set forth by the governing board of the school district. Guidelines for qualification are included in sections 12650 through 12653 of the Vehicle Code.

Student licenses may be issued only for the duration of the course and in no event for a period to exceed one year. There is no fee for the student license. A student license may not be issued to a minor under eighteen years of age without the consent of the parent(s) or the person(s) having legal or actual custody of the student. The "Statement of Consent to Issue and Acceptance of Liability," Form DL-119, must be attached to the application before it is forwarded to the Department of Motor Vehicles.

The Department of Motor Vehicles stipulates that the student license be disposed of in the following manner:

1. The first copy is the original and must be *forwarded immediately* upon issuance of the student license to the Department of Motor Vehicles (with Form DL-119 attached).
2. The second must be sent, upon completion of the driver education laboratory phase of the course, to Traffic Safety Education, California State Department of Education, 721 Capitol Mall, Sacramento, CA 95814. Private and parochial schools may retain this copy as part of their records.
3. The third copy of the student license must remain in the possession of the school and is to be in the student's possession only while the student is participating in behind-the-wheel instruction in the school car. Upon

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[1] *Student License Manual.* Sacramento: California State Department of Motor Vehicles, 1975.

completion of the course, the appropriate items on the form must be checked, and the form must be returned to the Department of Motor Vehicles.

Instruction Permit

An instruction permit may be issued to persons between fifteen and one-half and seventeen and one-half years of age providing they have completed driver education satisfactorily or are enrolled currently in a driver education course and are (or will be during the same semester) enrolled in a class for behind-the-wheel instruction. The permit is valid only for behind-the-wheel instruction in the presence of a fully licensed adult.

Driver's License

Persons between sixteen and eighteen years of age must submit valid evidence of having completed successfully both driver education (classroom) and driver education laboratory requirements before they may be issued a driver's license.

DMV Forms and Publications

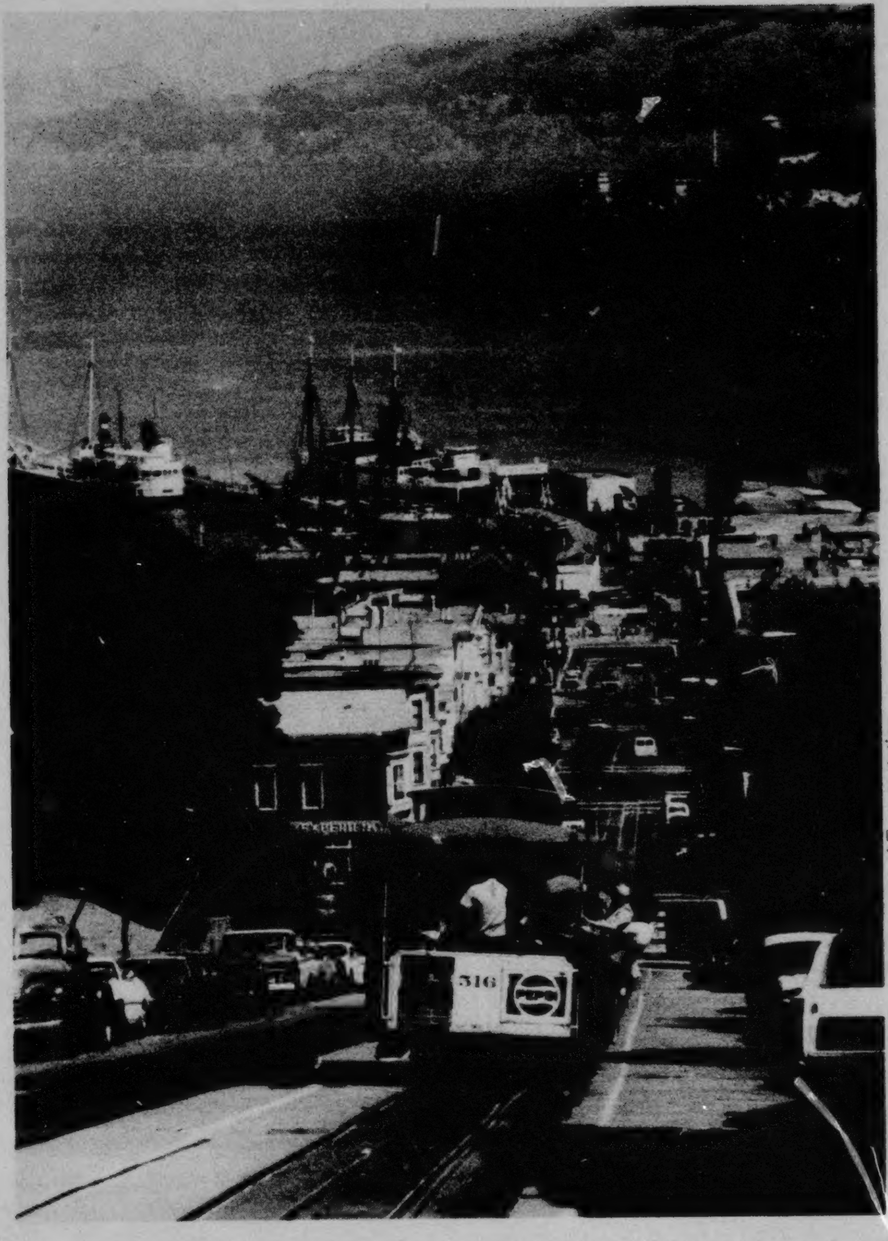
The Department of Motor Vehicles will provide copies of all the pertinent driver instruction forms to each school district. Requests for materials must be submitted on Form DL-396. Quantities of various forms and supplies to be ordered are determined by anticipated enrollment. (See *Student License Manual,* Section 3.005.)

The following instruction forms and publications are supplied by the Department of Motor Vehicles:

- DL-5B, "Student Driver's Examination"
- DL-37, *Roadsign Chart* (also available in Spanish)
- DL-38, "Statement of Facts Concerning Minor and Certification of Insurance Coverage"
- DL-118, "Student License"
- DL-119, "Statement of Consent to Issue and Acceptance of Liability"
- DL-387, "Certificate of Completion of Driver Education"
- DL-388, "Certificate of Completion of Both Driver Education and Driver Training"
- DL-391, "Certificate of Simultaneous Enrollment in Classroom and Laboratory Phases of Driver Education"
- DL-396, "Requisition for Driver Instruction Forms"
- DL-600, *California Driver's Handbook* (also available in Spanish, Vietnamese, and other languages)
- *Student License Manual*
- *Uniform Sign Chart*

Requests for supplies must be directed to:

Department of Motor Vehicles
Division of Drivers' Licenses
Operation Support Unit
P.O. Box 2590
Sacramento, CA 95812



Courtesy of California State Department of Transportation

Even when on vacation, travelers must observe the rules of safety if they wish to return home unharmed.

CHAPTER 3

TRAFFIC SAFETY CURRICULUM

The behavioral approach to the teaching of traffic safety emphasizes objectives which are measurable. Commencing with a *concept*, which may be defined as a general idea, fairly broad in scope, the behavioral approach leads to the subdivision or extension of the instructional program into a number of related features, the principal elements of which are performance indicators and terminal objectives. A further extension of the instructional program would include various learning activities closely related to the development of the original concept.

The desired objective is to provide students with a wide range of ideas and activities which will ultimately develop and establish desirable behavior patterns. A reasonable assumption derived from the fulfillment of a behavioral objective would be that once students are exposed to specific traffic situations, they will respond in an acceptable manner and with a degree of permanence built into their life-styles.

Tasks to Be Done

The following charts present a traffic safety program which is designed to inculcate desirable driver behaviors in students. Instructors should become thoroughly familiar with the program's features and adapt the program to meet specific classroom needs. The five program sections that are presented in the charts are as follows:

1. *The driving task*—The driving task is the basis for all elements of driver education. The driver must realize that safe driving involves acquisition of basic knowledge and the ability

to apply the knowledge and demonstrate a reasonable degree of skill in vehicle operation and control.

2. *The readiness task*—Driving readiness constitutes at least two general factors: (a) the ability to perform certain physical actions on command; and (b) a stable mental condition preparatory to the actual driving experience.
3. *Highway emergencies*—High speeds, traffic congestion, and the laws of nature constitute the ingredients of conflict. The student driver must become knowledgeable about ways to minimize, through compensation or restraint, the consequences of conflict on the highway.
4. *Transportation systems*—Students should already be aware of the massive complexity inherent in the movement of people and goods in our nation; the most important component is people, who must coordinate the various systems of transportation. The operation of vehicles on the streets and highways, much of the time in extreme congestion and by people with varying performance skills and physical attributes, requires a well-coordinated system. Vehicle operators who have had special education and training in both public and private transportation systems contribute immeasurably to the system's effectiveness.
5. *Improvement tasks*—The increasing number of vehicles on our streets and highways and the constant increase in vehicle speed potential are factors which the beginning driver should understand. These factors amplify the importance of defensive driving. There must be constant willingness to improve one's skills, attitudes, and performance standards if one wishes to blend into the traffic pattern as it exists today. Steps must be taken in the educational process to motivate a desire to restrain reckless compulsion and competition behind the wheel of a high-powered vehicle. Maturity, responsibility, and self-improvement are necessary attributes in developing a competent highway user. The driver must be capable of adjusting to real-life conditions.

Trailer Pulling

Ever since the first Indian strapped a travois behind his horse, Americans have been concerned with trailers. Over five million trailers are registered in the United States which travel nine billion miles annually, indicating that one in every 100 passenger vehicles is towing a trailer of some type.

Whether for pleasure or necessity, the mobile American citizen will sooner or later have the experience of towing something behind his or her vehicle. This indicates a need for all drivers to be aware of the benefits and hazards of trailers.

A trailer is a vehicle with or without motor power, designed to carry persons or property and to be drawn by another vehicle. The key to the safe operation of a car-trailer combination depends on the car, mechanism connecting car and trailer, trailer, distribution of cargo weight, and driver.

Important information about trailers that should be kept in mind includes the following items:

1. California law requires that a towing vehicle have rearview mirrors on both the left- and the right-hand sides of the vehicle.
2. Connecting mechanisms include hitches and couplers (weight carrying and weight equalizing); electrical connections for the turning signals and brake lights; and safety chains.
3. The weight of the trailer and cargo should not exceed the empty weight of the towing vehicle. Distribution of cargo weight should be as follows:
   a. Sixty percent of the weight must be in the front half of the trailer.
   b. Ten percent of the loaded trailer weight should be on the hitch of the tow bar.
   c. Weight should be distributed evenly.
4. The driver must be aware of the effect that the towed trailer has on the manueverability of the car:
   a. Acceleration is slower.
   b. Deceleration is slower.
   c. Following distance should be increased.
   d. Area required for passing is increased.
   e. In turns, trailer will track inside towing vehicle's path.
   f. Backing manuever should be performed more slowly.

Vehicle Code sections relating to towing another vehicle include towed vehicles swerving (21711); unlawful riding (21712); maximum speed for designed vehicles (22406); trailer brakes (26302); breakaway brakes (26304); mirrors (26709); coupling or connection (29003); and towed vehicle (29004).

THE DRIVING TASK

Concept	Student performance indicator		
	Classroom	Simulator	Vehicle
Outside precheck	List six predriving checks.	Identify six predriving checks.	Perform all outside prechecks within two minutes.
Driver posture	List three ways in which sitting position affects steering.	Assume a sitting position in which eye level is at least two inches above the steering wheel and hands and feet are within comfortable reach of all necessary controls.	Assume a sitting position in which eye level is at least two inches above the steering wheel and feet and hands will reach comfortably all necessary controls.
Starting procedures	Arrange a list of prechecks in proper sequence and identify, in writing, their importance.	Start simulator within one minute of the instructor's command to start (gear shift in park position, parking brake on, seat belt on). Student must have secured safety belts anytime "engine" is running.	Perform correctly all of the predriving procedures in proper sequence and successfully start the engine of the vehicle within two minutes.
Target steering	Define *target steering.*	Use the flashlight pointer to identify the target at which the student would direct his or her steering in certain simulator sequences.	Demonstrate ability to drive toward a given target at least 100 yards ahead of the vehicle by moving the car in a straight line at idle speed without varying more than two feet from side to side.
Acceleration	Define potential and kinetic energy, inertia, and friction in relation to moving a vehicle. Define acceleration and explain at least four factors influencing acceleration in a motor vehicle.	Press the accelerator firmly, and maintain speed without recording "full acceleration." Identify within ten seconds the cause of the accelerator not functioning as "parking brake on," "not in drive," "car not running," or "not accelerating."	Move vehicle forward and attain and maintain a speed of ten miles per hour within two minutes.
Slowing and/or stopping	Explain how energy is dissipated in the form of heat energy during normal deceleration. Define deceleration and explain at least three factors, other than braking, which affect deceleration in a moving motor vehicle.	Demonstrate reducing speed from 15 miles per hour to five miles per hour within five seconds as evidenced by an accelerator/speed check on the recorder. Reduce speed from 25 miles per hour to ten miles per hour within five	Decrease vehicle speed by five miles per hour without the use of the brake. Bring the vehicle to a smooth stop at a predetermined point at least 100 feet ahead from a speed of ten miles per hour. This task will be accomplished within 30 seconds.

THE DRIVING TASK (continued)

Concept	Student performance indicator		
	Classroom	Simulator	Vehicle
Slowing and/or stopping (continued)	Explain the legal requirements for stopping at controlled intersections. Define various braking techniques.	seconds, using proper heel and toe placement on floor and brake.	Demonstrate smooth reduction of car speed from 25 miles per hour to ten miles per hour in light traffic, using proper heel and toe placement on brake. This task is to be accomplished within five seconds.
Curb starts and stops	List in correct sequence the proper procedures for performing a curb pullout and a curb park, utilizing the proper method and sequence meeting all requirements of the California Vehicle Code.	Demonstrate correct procedures as evidenced by brake, signal, steering, and accelerator/speed checks on the recorder. Demonstrate blind-spot checks.	Perform correctly curb pullout and curb procedures and be able to repeat the maneuvers on at least two consecutive occasions.
Securing	List correctly all of the postdriving procedures in proper sequence.	Perform correctly all of the post-driving procedures in proper sequence as evidenced by checks on the recorder.	Perform correctly all of the post-driving procedures in proper sequence within one minute.
Turns	Classify the following kinds of friction: static, sliding, rolling, and internal; and describe three general conditions that determine the amount of friction between two surfaces. Describe and explain four factors affecting friction in maintaining vehicle control. Explain the law of inertia as it applies to a moving vehicle in a cornering manuever. Explain how each of the following factors affects vehicle control in a cornering maneuver: speed, weight of vehicle, radius of the turn, coefficient of friction between the tires and the road, side slope of the road surface, suspension system, and center of gravity of the vehicle.	Demonstrate ability to recognize the location and conditions of a turn at least 100 feet in advance by giving an appropriate signal as evidenced by a recorder. Use the target method of steering to perform a turn to the left at an intersection as evidenced by proper steering, speed, and brake checks on the recorder. Use the target method of steering to perform a turn to the right at an intersection as evidenced by proper steering, speed, and brake checks on the recorder. Demonstrate accelerator control.	Demonstrate ability to recognize the location and conditions of a turn at least 100 feet in advance by giving an appropriate signal. Use the target method of steering to perform a turn to the left at an intersection at a speed of no more than ten miles per hour. The vehicle will maintain a distance of no less than two feet nor more than five feet from the center of the roadway throughout the maneuver. Use the target method of steering to perform a turn to the right at an intersection. The vehicle will maintain a distance of no more than five feet from the curb *or main traveled portion of the roadway.*

Turns (continued)	Explain the most important factor affecting car control in a cornering maneuver.		
Recognition of movement from the sides of the roadway	Identify, given a series of residential street scenes to analyze, potential movement from the sides of the roadway that indicate a need to evaluate and perhaps alter the rate of movement. Relate the correct procedure for crossing through a blind, uncontrolled intersection. Define right-of-way, describe a general safety rule for right-of-way situations, and describe four specific rules for right-of-way situations as specified in the Vehicle Code.	Demonstrate early recognition of potential hazards from the sides of the roadway by covering the brake.	Identify verbally movement clues of vehicles or people moving toward the vehicle from the sides of the roadway. Demonstrate the correct procedure for crossing a blind intersection. Observe all applicable right-of-way rules with verbal assistance from the instructor.
Speed control	List and explain five factors which would help a driver to choose accurately a correct and safe speed for the vehicle. Explain the basic speed law, and give examples of how it relates to vehicle and driver capabilities, environmental conditions, man-made laws, and the driver's directional objectives. Classify three different types of speed laws as specified by the Vehicle Code. Explain the speed laws pertaining to residential areas; blind, uncontrolled intersections; alleys; blind, controlled railroad crossings; and posted limits.	Demonstrate a speed that is reasonable and prudent. Demonstrate correct speed control in residential areas; blind, uncontrolled intersections; alleys; blind, controlled railroad crossings; and posted limits.	Demonstrate a speed that is reasonable and prudent for existing conditions and type of roadway.
Hazard recognition and avoidance	Identify, given a series of residential street scenes to analyze, potential hazards, and indicate the correct avoidance technique.	Demonstrate correct avoidance techniques as evidenced by steering, braking, and speed.	Inform the instructor of a hazard commonly found in residential areas within three seconds after the hazard has been observed by the instructor. Identify, correctly, when driving in light traffic, the basic hazard potentials ahead by informing the instructor at least one city block before meeting the situation. React correctly to potential hazards ahead by using the proper method

THE DRIVING TASK (continued)

Concept	Student performance indicator		
	Classroom	Simulator	Vehicle
Hazard recognition and avoidance (continued)			within the correct time period as defined by the instructor.
Speed selection	Identify, given a series of highway scenes to analyze (slides, transparencies, filmstrips, chalkboard, and diagrams), roadway and vehicle conditions that indicate a need to evaluate and perhaps alter the rate of the vehicle's movement.	Demonstrate, by means of driver commentary and/or pointer flashlight, errors by the teacher and roadway and traffic conditions that indicate a need to evaluate and perhaps alter the rate of the vehicle's movement.	Identify verbally roadway and vehicle conditions that indicate a need to evaluate and perhaps alter the rate of the vehicle's movement.
Safest lane	Identify the safest available lane in each of a given series of situations (as demonstrated in slides, transparencies, filmstrips, and diagrams) and give reasons for the selection.	Demonstrate correct speed and steering adjustments for safest lane use.	Identify verbally, upon request, the safest lane to occupy.
Recognizing the need to change lanes	List five reasons for changing lanes.	Indicate verbally, while viewing slides, transparencies, filmstrips, chalkboard, and diagrams, the need to change lanes.	Inform the instructor if there is a need to change lanes.
Executing lane change	List, in proper sequence, the steps involved in making a safe lane change and give the reason behind each step.	Demonstrate the correct procedures for making a safe lane change.	Demonstrate ability to perform a safe lane change.
Search pattern	Describe the basic operator function in the driving task to identify critical objectives or changes which may require compensatory action.	React at the same time as the demonstration driver whenever a clue to a response is indicated. Demonstrate understanding of the correct scanning technique by responding correctly to the teacher's questions about appropriate filmed sequences.	Move eyes at least once every five seconds, as observed by the instructor, to develop hazard awareness. Move eyes at least once every five seconds, including at least one glance in the mirror every ten seconds as observed by the instructor. Check mirror: 1. Before and after turns 2. Before and after slowing, stopping, or accelerating 3. When changing lanes or deviating from a straight line

Time and space	Explain the operator functions which take place during reaction time as affecting the total stopping distance. Explain the difference between simple and complex reaction times in relation to distance traveled. List eight factors which could lengthen an operator's reaction time. Explain the physical process and operator functions which take place during braking time and the resulting distance traveled as part of total stopping distance. List ten factors which lengthen braking time and the distance traveled. Explain and define the role of perception time and distance traveled as a part of total stopping distance. Describe and explain the optimum perception time for the safe operation of a motor vehicle. Describe a method for maintaining a safe following distance at any given speed. Identify, given a series of traffic situations involving hazards ahead, relevant clues and select measures under operator control that will reduce the probability of conflict with other highway users.	Demonstrate, by easing up on the accelerator and/or covering the brake, the ability to maintain a space cushion. Demonstrate, through driver commentary, the ability to maintain a space cushion. Demonstrate the ability to "control brake" as an avoidance technique.	Verbalize and demonstrate a two-second following distance from any vehicle ahead. Demonstrate, through driver commentary and vehicle operation, the ability to maintain a space cushion.
Recognizing and avoiding road hazards	Indicate, given a situation illustrating a road hazard, four possible avoidance techniques. List six potential road hazards.	Demonstrate the ability to use acceleration and/or deceleration, steering or no steering, and braking or no braking as necessary for various traffic situations.	Identify clues to road hazards and avoid them in a correct manner.
Recognizing and avoiding moving hazards	Indicate, given a situation illustrating a moving hazard, four possible avoidance techniques. List at least five potential moving hazards.		Identify verbally, at least one block in advance, clues to moving hazards and avoid them in a correct manner.
Recognizing and avoiding hazardous driving situations	Indicate, given a situation illustrating a hazardous driving situation, three possible avoidance techniques.		Identify verbally, at least one block in advance, clues to hazardous driving

THE DRIVING TASK (continued)

Concept	Student performance indicator		
	Classroom	Simulator	Vehicle
Recognizing and avoiding hazardous driving situations (continued)	List at least six hazardous driving situations.		situations and avoid them in a correct manner.
Pedestrian right-of-way	List at least six commonsense rules for pedestrians.	Identify hazardous pedestrian behavior as shown in films or filmstrips.	Identify verbally visual clues and adjust driving to avoid or minimize the hazard.
Backing	Explain at least three situations in which backing will be required in personal driving. Describe three reasons why drivers should not limit themselves to using only the rearview mirrors when they drive in reverse.	Demonstrate the ability to use proper gear position, speed, and posture as evidenced by teacher observation. Demonstrate the ability to use proper gear positions, speed, steering, and posture as evidenced by teacher observation.	Back a car in a straight line at a speed of no more than ten miles per hour for a distance of at least 100 feet without varying more than two feet to the left or to the right of the lane position. Demonstrate correct procedure for backing from driveway.
Visual search pattern	List five situations in which it is illegal to make a turnabout, according to the Vehicle Code. List at least three visual clues which would be of assistance in selecting a location to perform a car-control maneuver.	Identify at least five visual clues which would be of assistance in selecting a location to perform a turnabout.	Select a location for the turnabout maneuver which will meet the criteria set forth in the California Vehicle Code.
Turnabouts	Describe a procedure for safely turning the car around on a street without making a complete U-turn. Explain the rationale for that particular maneuver and justify the reason for each step.	Demonstrate the ability to perform a turnabout as evidenced by steering, speed, gear position, and brake control.	Perform a turnabout within three minutes and at a speed of no more than ten miles per hour.
Oncoming conflicts	Describe the seven reasons why an oncoming car may cross the middle of the roadway, thus presenting a threat of head-on collision. Describe eight procedures a driver could utilize to reduce the risk of	Demonstrate the ability to respond correctly to a head-on collision threat as evidenced by steering checks on recorder. Demonstrate the ability to respond correctly to a head-on collision	Identify verbally, during a five-minute driving exercise in moderate-to-heavy traffic, all clues to potential oncoming conflicts, and demonstrate appropriate procedures for avoiding such conflicts. This exercise is to be

Oncoming conflicts (continued)	meeting an oncoming vehicle, and give the reason for each procedure. Describe the procedure a driver should use when confronted with a possible head-on collision and give the reason for the procedure. Identify, when shown approach positions to various kinds of intersections, and appraise relevant clues to oncoming conflicts, and state effective methods of handling each situation.	threat as evidenced by accelerator and recorder speed checks. As evidenced by recorder brake and/or steering checks, demonstrate the ability to respond correctly to a head-on collision threat. Demonstrate the ability to use headlights as a signaling device to avoid a head-on collision as evidenced by teacher observation.	accomplished without any assistance from the instructor.
Following a vehicle	List three reasons why adequate distance should be maintained behind other vehicles.	Demonstrate ability to identify clues to potential danger and avoid all cars ahead as evidenced by speed, steering, and brake control.	Identify verbally, while driving in an area of heavy traffic and many parked vehicles, clues to potential danger and avoid all cars which are stopping, slowing suddenly, or rolling backward after stopping. This activity is to take place during an entire class period and without the assistance of the instructor.
Vehicle moving in same direction	Describe at least six reasons for expecting another moving vehicle to move in front of one's own vehicle.	Demonstrate ability to avoid all cars moving in the same direction and "cutting in" as evidenced by deceleration, steering, and brake control.	Identify verbally, while driving in an area of heavy traffic and many parked vehicles, all clues to potential danger and avoid all cars moving in the same direction. This activity is to take place during an entire class period and without the assistance of the instructor.
Parked or momentarily stopped vehicle	List at least five clues to potential hazards relating to parked vehicles.	Demonstrate ability to avoid all cars that are parked or momentarily stopped as evidenced by deceleration, steering, and/or brake control.	Identify verbally, while driving in an area of heavy traffic and many parked vehicles, all clues to potential danger, and avoid all cars that are parked or are momentarily stopped but which may move or conceal additional hazards. This activity is to take place during an entire class period and without the assistance of the instructor.
Passing	Identify the situations relating to passing as specified by the Vehicle Code.	Demonstrate ability to perform correctly the passing maneuver as evidenced by signal, speed, and steering.	Successfully perform the passing maneuver in a multilane highway.

THE DRIVING TASK (continued)

Concept	Student performance indicator		
	Classroom	Simulator	Vehicle
Passing (continued)	Describe in sequence the procedures for passing another vehicle and explain the reason for each procedure. Indicate the distance required for carrying out each procedure when traveling at a given speed. Explain and describe proper clearance of vehicles ahead and behind when changing lanes or passing.		Perform the passing maneuver on a two-lane road.
Visibility and car control	Describe special visibility problems associated with driving among hills.	Demonstrate ability to respond correctly to hazards associated with limited visibility on hills as evidenced by speed and brake control.	Identify correctly the hazards associated with limited visibility on hills and demonstrate the appropriate response, as requested by the instructor.
Hill stopping	Explain the procedure for stopping on a hill. Explain the procedure for starting on a hill. Describe the front-wheel position for uphill parking as specified in the Vehicle Code and indicate the reason for this position. Describe the procedures for uphill and downhill parking and indicate the reason for each procedure.	Demonstrate ability to respond correctly to hazards associated with limited visibility on hills as evidenced by speed and brake control. Demonstrate the ability to stop correctly on a hill as evidenced by speed and brake control. Demonstrate the ability to start correctly on an upward grade as evidenced by speed and brake control checks. Demonstrate the procedures for uphill and downhill parking as evidenced by steering and brake control.	Identify correctly the hazards associated with limited visibility on hills and demonstrate the appropriate response as requested by the instructor. Bring the vehicle to a stop at a predetermined point on a grade of no less that 5 percent from a speed of 25 miles per hour without locking the brakes. This objective will be accomplished on both an upward and downward grade. Put the vehicle in forward motion from a stop on a grade of at least 5 percent without stalling the engine and allowing a maximum rollback of one foot. Park the vehicle on a downgrade and, at the end of the maneuver, have the vehicle's right front tire touching the curb with the rear of the vehicle no more than 18 inches from the curb.

Hill stopping (continued)			Park the vehicle on an upgrade and at the end of the maneuver have the vehicle's right front tire touching the curb with the rear of the vehicle no more than 18 inches from the curb. Leave from a downhill and a uphill parking position in a correct manner.
Tailgating	Identify the potential hazards of tailgating. Describe six driver techniques for disposing of a tailgater.	Demonstrate the various techniques for disposing of tailgaters as evidenced by speed, brake, steering, and light control.	Identify and avoid all cars that are following too closely.
Car passing from behind	Explain three possible hazards associated with a vehicle passing from behind and describe possible defensive measures.	Demonstrate the ability to alter path and speed when cars are passing from behind as evidenced by speed, brake, and steering control.	Identify and avoid all cars that are following too closely. Identify and avoid all conflicts with vehicles attempting to pass on either side.
Communicating	Identify and describe the importance of each of five methods of communicating with other highway users. Describe the appropriate laws pertaining to communicating with other highway users. Describe the procedures for communicating intention to make a turn and give the reason for each step. List five ways of assisting other drivers who are having car trouble. List six ways of warning other drivers of impending danger. Describe three ways of receiving assistance from other highway users. Explain the value of courteous communication with other drivers.	Identify five ways of communicating nonverbally with other highway users. Demonstrate acceptable means of communicating the intention to make a turn as evidenced by teacher observation. Demonstrate five ways of giving other drivers assistance. Demonstrate six ways of warning other drivers of impending danger. Identify three ways of receiving assistance from other highway users. Identify the value of courteous communication with other drivers.	Demonstrate five ways of communicating nonverbally with other highway users. Demonstrate at least three times the intention to make a turn. Demonstrate ways of giving other drivers assistance. Demonstrate six ways of warning other drivers of impending danger. Demonstrate three methods of receiving assistance from other highway users.
Responding to emergency situations	Describe critical situations that allow little or no time for decision making and result frequently in skidding, brake failure, and tire failure.	Demonstrate ability to respond correctly to critical situations.	Respond correctly when confronted with an emergency situation requiring evasive or compensative action.
Traction loss	Explain the cause, prevention, and correction for traction loss associated with overpowering.	Demonstrate the ability to respond correctly to traction loss as evidenced by speed, brake, and steering control.	

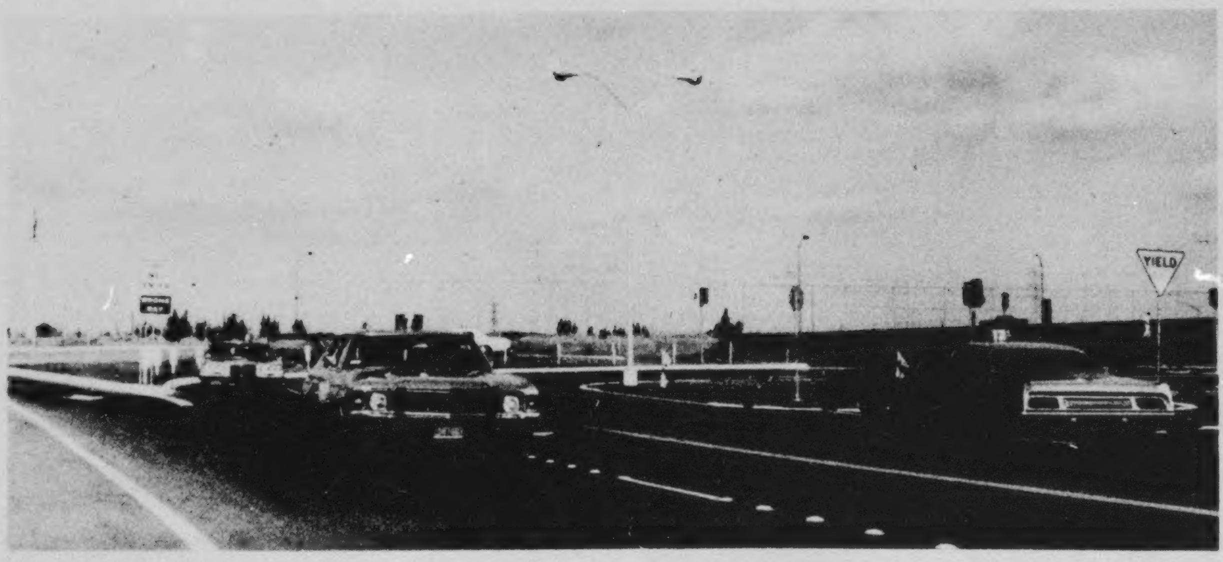
THE DRIVING TASK (continued)

Concept	Student performance indicator		
	Classroom	Simulator	Vehicle
Traction loss (continued)	List the causes, prevention, and correction for the traction loss associated with overbraking. List the causes, prevention, and correction for the traction loss associated with turns and curves. List the causes, prevention, and correction for the traction loss associated with hydroplaning. List the causes, prevention, and correction for the traction loss associated with snow, mud, or sand. Describe four principles and practices for preventing and correcting any kind of traction loss.		
Vehicle malfunctions and failures	List and describe the procedures for dealing with a brake failure. Describe the procedure for dealing with a stuck accelerator. Describe the procedure for dealing with a tire failure. Describe the procedure for dealing with a loss of vehicle power while driving. Describe the procedure for dealing with a steering failure while driving. Describe the procedure for dealing with a headlight failure while driving. Describe the procedure to follow when a vehicle's hood flies up while driving. Describe the procedure for executing an emergency stop at various speeds.	Demonstrate the proper procedure for dealing with a brake failure as evidenced by gear position and use of parking brake. Demonstrate the proper procedure for dealing with a stuck accelerator as evidenced by teacher observation. Demonstrate the ability to handle a tire failure as evidenced by acceleration. Demonstrate the proper procedure for dealing with a loss of vehicle power as evidenced by teacher observation. Demonstrate the proper procedure for dealing with a steering failure as evidenced by teacher observation. Demonstrate the proper procedure to follow when a vehicle's hood flies up as evidenced by teacher observation. Demonstrate the ability to execute an emergency stop as evidenced by steering and brake control.	Execute, within one minute of the verbal signal of the instructor, the emergency procedure for brake failure, and successfully bring the vehicle to a complete stop from a speed of no less than 20 miles per hour on a straight and level road. Execute, upon verbal signal of the instructor, the proper procedure for a stuck accelerator pedal, and bring the car to a complete stop from a speed of no more than 20 miles per hour within 50 feet of the place the signal was given. Bring the vehicle to a stop, using a blowout simulator to signal the need to stop, from a speed of no more than 20 miles per hour without losing directional control. During a loss of vehicle power, maintain directional control and negotiate

Vehicle malfunctions and failures (continued)			slight turns at a speed of no less than 20 miles per hour. Maintain straight-line car control within two feet of either side of the target point at a speed of 15 miles per hour. Demonstrate, upon the verbal signal of the instructor, techniques for dealing with headlight failure. Maintain straight-line car control, within two feet of either side of the target point, at a speed of five miles per hour as the teacher covers normal sight area of windshield with cardboard cutout. Maintain, upon the verbal emergency-stop signal of the instructor, straight-line car control within two feet of either side of the target point, and stop the vehicle from a speed of 30 miles per hour within 60 feet of the place the signal was given.
Causes of freeway collisions	List three of the most common types of driver behavior that create hazardous situations.	Demonstrate correct evasive maneuvers used to avoid a collision.	
Entering and exiting freeways	Describe the proper procedures for entering and exiting a freeway.	Demonstrate ability to enter and exit a freeway in the correct manner as evidenced by speed, steering, and brake control.	Enter and exit a freeway in a correct manner at least three different times.
Freeway control	Identify, given a series of freeway driving situations, necessary adjustment procedures.	Demonstrate ability to maintain safe directional and speed control on freeways.	Maintain directional and speed control while driving on the freeway.
Path of least resistance	Identify, given a series of freeway driving situations, correct path adjustments that the driver should make to ensure safety.	Identify correct path adjustments.	Recognize and avoid situations that may cause a conflict.
Knowledge of escape techniques	Describe reasonable space cushion in various types of freeway traffic and at various times of the day.	Identify space cushion availability.	Maintain, while driving on a multilane highway, a space cushion around the vehicle so that an escape route is maintained.

THE DRIVING TASK (continued)

Concept	Student performance indicator		
	Classroom	Simulator	Vehicle
Knowledge of routes	Explain, using local area maps, reasons for street and/or highway selection from point X to point Y. (Avoid areas of congestion.) Outline, using local area maps, 10-minute, 15-minute, and 20-minute routes that include various types of traffic, streets, highways, and/or freeways.	Identify advantages and disadvantages of various types of traffic-movement areas.	Follow, when given a specific route and destination, the route, making all entrances, exits, and lane changes necessary to achieve the objective with the verbal assistance of the instructor. Demonstrate to the instructor's satisfaction an ability to achieve the foregoing objectives. Then, follow a specified route to a specified destination, making all necessary lane changes, exits, entrances, and other course changes at the proper time without the assistance of the instructor.



Courtesy of San Diego City Unified School District

A multiple-car facility is an off-street paved area incorporating a variety of realistic traffic situations that help students develop identification, prediction, decision, and execution skills.

THE READINESS TASK

Concept	Student performance indicator	Learning activities
	Classroom	*The classroom instructors should enter activities in this column that fulfill student opportunities for meeting the performance indicators.*
Impairments	Identify and appraise physical, physiological, mental, and psychological factors that influence the behavior of highway users. Determine appropriate courses of action to minimize the hazards caused by these factors.	
Alcohol, the drinking driver, and the drinking pedestrian	Arrange a list of bodily functions (speech, vision, judgment, coordination, and so forth) in the order in which they would be impaired by an increased concentration of alcohol in the blood. Describe the effects of alcohol on the functioning of a pedestrian. Describe the effects of alcohol on the functions involved in driving (identification, prediction, decision, and execution) in the order that these effects are likely to occur as the concentration level of alcohol increases. Explain why the adverse effects of alcohol ingestion are likely to be more pronounced in young persons than in adults. Identify and appraise factors that prompt young people to drink, and develop personal guidelines for behavior that will minimize the risks associated with drinking and driving. Assess the potential of legislation and enforcement measures for reducing alcohol-induced highway accidents.	
Other drugs	Classify at least three types of drugs (out of a choice of six) according to their effects on bodily functions and their possible consequences for the motor vehicle operator. Formulate, on the basis of class discussion and personal experience, a set of personal strategies for avoiding harmful highway consequences associated with drug use.	
Emotions and motivations	Summarize the nature of four emotions (out of a choice of six) and summarize their effects on motor vehicle operators. Formulate personal guidelines for anticipating and handling situations likely to induce strong emotions and unsafe driving behavior.	

THE READINESS TASK (continued)

Concept	Student performance indicator	Learning activities
	Classroom	*The classroom instructors should enter activities in this column that fulfill student opportunities for meeting the performance indicators.*
Emotions and motivations (continued)	Identify at least four needs which young drivers try to satisfy on the highway (other than the need for transportation). Match appropriate behavior patterns with a list of four psychological needs which operators may attempt to satisfy. Suggest alternative means of satisfying the needs in the preceding exercise that would be safer and more productive.	
Fatigue and carbon monoxide	Identify four causes of fatigue. Predict at least seven effects of fatigue on human functions and driver performance. Formulate personal guidelines for minimizing the danger of fatigue-induced accidents. Identify the source of carbon monoxide, the effects of carbon monoxide on bodily functions in relation to driver performance, the conditions that increase the chances of carbon monoxide poisoning, and the measures that an individual might employ to avoid carbon monoxide poisoning.	
Other impairments	Identify five physical handicaps for which effective means of compensation are available in motor vehicle operation. Compare driving errors committed by young drivers with errors committed by elderly drivers. Describe one problem related to physical and mental standards for driver licensing and suggest a possible solution to the problem.	

HIGHWAY EMERGENCIES

Concept	Student performance indicator	Learning activities
	Classroom	*The classroom instructors should enter activities in this column that fulfill student opportunities for meeting the performance indicators.*
Minimizing impact forces	Predict correctly, given three combinations of speed and impact distance, the different consequences resulting from a collision. Select the best course of action from among several alternatives, given a series of emergency situations (via film, slides, or diagrams) in which a quick response is needed to avoid or reduce the impact of a collision. Describe four similarities between packaging a fragile object for shipping and "packaging" the occupants of an automobile for driving. Explain at least four reasons for using a three-point restraint device in a vehicle. Identify three measures available to a motorbike operator that will reduce personal injuries resulting from a collision. Identify, given a series of pictures, good and bad features of highway and off-highway designs in relation to the avoidance of collisions and the consequences resulting from collisions. Appraise at least three major features closely associated with operator efforts to avoid collisions.	
At the collision scene	Describe, given a description of the scene of an accident, the basic steps which should be taken so that the situation is handled correctly. Given the details of an accident and imagining that you were one of the drivers involved, fill out a California SR-1 accident report and indicate where the form should be sent. Describe three ways in which advance planning of emergency communications, transportation, and medical services reduces the number of deaths and severity of injuries from motor vehicle accidents (loss-limiting factors).	
Financial responsibility	Define "financial responsibility" as described in the California Vehicle Code. Relate the basic principle of insurance to that of reducing the consequences of traffic collisions.	

HIGHWAY EMERGENCIES (continued)

Concept	Student performance indicator	Learning activities
Financial responsibility (continued)	Classroom	*The classroom instructors should enter activities in this column that fulfill student opportunities for meeting the performance indicators.*
	Define correctly the terms "liability," "negligence," and "judgment." Be able, given an amount of liability coverage and judgment awarded, to indicate correctly whether the coverage was adequate to cover the need. Identify and distinguish between damages claimable under collision insurance coverage and those claimable under comprehensive auto insurance coverage. Summarize the benefits of medical payment insurance, road service insurance, and uninsured motorist protection. Identify the value of a financial responsibility law, and explain how to satisfy the requirements of such a law when a driver is unable to obtain insurance through routine procedures. Correctly identify three factors which influence insurance premium rates. Identify reasons for higher insurance rates among young drivers, and suggest a means of keeping those rates to a minimum.	

TRANSPORTATION SYSTEMS

Concept	Student performance indicator	Learning activities
	Classroom	*The classroom instructors should enter activities in this column that fulfill student opportunities for meeting the performance indicators.*
Comparison of transportation systems	Describe the four major components of the highway transportation system, and compare their characteristics with similar components in rail, water, and air transportation systems.	
Highway transportation system	Define the highway transportation system in terms of its components, goals, management forces, criteria for evaluating its effectiveness, operator and nonoperator tasks, and membership requirements.	
Management force	Define the different kinds of traffic laws and describe their purposes. Contrast the reasons for the possible benefits to the individual of obeying versus disobeying traffic laws. Identify, given a description of traffic laws and general enforcement measures in a community, the strengths and weaknesses of the program. Describe the functions of traffic police. Given a description of a police officer stopping a motorist for a traffic violation, including dialogue, evaluate the behavior of both the officer and the violator; and hypothesize about the motivation which prompted the participants to behave as they did. Evaluate, given a description of a traffic violator appearing in court, the characteristics of the court and the behavior of the participants. Define traffic engineering and describe the function of traffic engineers.	
Performance criteria	Identify the key events in the history and development of traffic engineering. Classify the factors which cause turbulence in traffic movement. Describe traffic situations in which lack of uniformity in a sign, signal, or road marking could cause driver confusion. Identify the factors that traffic engineers consider in determining proper speed limits and the installation of signs and signals. Explain a spot map, collision diagrams, flow maps, and other "tools" used by traffic engineers.	

TRANSPORTATION SYSTEMS (continued)

Concept	Student performance indicator	Learning activities
	Classroom	*The classroom instructors should enter activities in this column that fulfill student opportunities for meeting the performance indicators.*
Performance criteria (continued)	Suggest, given a series of highway scenes (rural, urban, and freeway), ways to improve traffic flow and safety with relatively inexpensive techniques. Summarize the problems created in locating a new highway and the methods by which government attempts to deal with these problems. Identify the problems traffic engineers face in implementing sound ideas and in rejecting unsound suggestions from various sources.	
Problems of the highway transportation system	Classify traffic accident data and suggest implications of these data for transportation system improvement. Summarize the purposes served by an effective accident reporting system. Discuss traffic accidents in relation to other major social problems such as war, disaster, poverty, famine, disease, and crime.	
Urban planning and land uses	Describe the nature and purpose of a comprehensive, long-term general plan for the physical development of a city or county. Explain the function of the land-use and circulation elements in a general plan. Classify the five categories of streets and highways in a circulation element. Identify the sources of revenue available to finance highway and street systems.	
Social impact of the automobile	Trace the development of the motor vehicle and its effect on our economy and way of life. Predict the effect on our economy and our way of life if the motor vehicle were to be eliminated. Identify the occupational and career opportunities available in the transportation industry. Predict future modes of transportation and potential career opportunities. Describe aspects of the circulation element other than streets and highways. Compare transportation to other aspects of urban planning.	

IMPROVEMENT TASKS

Concept	Student performance indicator	Learning activities
	Classroom	*The classroom instructors should enter activities in this column that fulfill student opportunities for meeting the performance indicators.*
Traffic system	Select the more appropriate alternative, given a list of specific deficiencies in the highway traffic system components, with alternative procedures for a private citizen to follow to initiate or support action for correction of the deficiency. Classify the various government, business, industrial, and educational forces involved in the development and improvement of the major components (man-machine-roadway) of the highway transportation system.	
Self-concept	Define the term "self-concept," and give an example of how self-concept influences our behavior. Identify, given a list of traits that influence driving performance, those traits which tend to characterize young drivers. Distinguish, given a list of traits which influence driving performance, those that *promote* from those that *interfere* with competent performance on the highway. Explain, given three examples based on content, why our highway behavior may be less personal than our behavior in other social settings. Give five reasons why some students will continue to improve their driving ability after driver instruction while others will demonstrate little improvement.	

CHAPTER 4

INSTRUCTIONAL MEDIA

Instructors in driver education often have the opportunity to integrate special instructional media into the curriculum. To present a meaningful instructional package, it is recommended that a multimedia approach be used which includes instructor-created material responsive to specific local conditions as well as prepackaged national and state programs. If this goal can be met, one is on the way to presenting a complete and enriched curriculum in traffic safety instruction.

Use of Videotape

Television provides one means of individualizing programs in driver education in terms of both the student and the community traffic conditions. Through videotape the student is given an opportunity to explore and record the traffic conditions within his local community. Independent study packages can be developed and used by a student for basic information, remedial help, or makeup lessons, or to satisfy general interest in the material.

Classroom Application

A series of in-car lessons can be developed locally for use by the classroom teacher to demonstrate the necessary habits and skills required of students during their in-car instruction. Common errors that are made in driving and suggestions for correcting them can be studied by the individual student or by small groups. These filmed lessons are also valuable as remedial lessons when the student's performance level is below standard.

Local driving patterns or prescribed routes can be filmed for use during simulator lessons. Videotapes developed locally can be used with commercial training films to prepare the student for the in-car training phase of a lesson.

Laboratory Application

A portable television camera can be mounted in the driver training car to provide a filmed record of the driving lesson. Students can then evaluate more objectively their driving weaknesses and strengths and gain additional insight concerning the elements that constitute the driving task. The student will be able to evaluate personal progress and recognize areas in which further improvement is needed. The students, individually or in small groups, may also enhance their skills through peer evaluation, learning from each other by observing videotapes of individual performance.

Instructor Evaluation

Through the use of closed-circuit television, individual instructors can both see and hear themselves as they instruct in the driver education car. This enables evaluating personal teaching effectiveness and determining to what degree the teaching objectives have been attained. By viewing the videotape, a teacher can analyze what has occurred and can develop an awareness of techniques to use during subsequent instructional lessons; videotapes provide an opportunity to observe and evaluate instructional methods and communication techniques.

Educational Television

The potential of educational television as an instructional medium in driver education has not been fully developed. There is a dissimilarity in function and use of educational television and the closed-circuit videotape system. The educational television program is broadcast from a central location and cannot be altered in the classroom. The videotape system has greater flexibility, one aspect of which allows students to view their own driving achievement.

Some advantages of educational television are (1) students are able to observe teaching demonstrations presented under optimal conditions; and (2) all schools, regardless of size or location, can share in similar curricular experiences.

Motion Pictures

A motion picture should be used as part of the class assignment, not as an escape from responsibility. When selected according to content, objectives, and the nature of the learning experience, the film can be a valuable supplemental teaching device. In some instances motion pictures contribute learning experiences duplicated in other usable instructional media. In all subject areas the teacher should identify the topic to be studied and select the most appropriate film designed to reinforce the concomitant learning experience.

The motion picture film should be recognized as a powerful teaching device that can use entertainment as a vehicle for motivation.

When using a film, the instructor should:

1. Preview all films before using.
2. Explain the purpose and design of the film.
3. List specific objectives for all films shown.
4. Explain any new terms used in the film.
5. Ensure that the lighting conditions and acoustics are satisfactory.
6. Give a short test on key matters treated in the film.

Programmed Instruction

Programmed instruction is an additional teaching aid which can supplement the learning process but cannot replace the teacher. A variety of methods and devices have been developed in the field of driver education, each of which has both strong points and weaknesses. Research studies do not find the method of programmed instruction superior to the conventional textbook method. In general, in programmed instruction course content is divided into instructional units, the question and answer method being used to determine the appropriate answer. One area in which students have used this method to advantage is in the study of the various provisions of the Vehicle Code.

Team Instruction

The team instructional plan is designed to utilize in a better way the teaching strengths of members of the department or on occasion to use interdepartmental expertise for a specific presentation. The team approach is used to advantage in the classroom and laboratory phase when more than one instructor is responsible for a student's instruction. There must be close coordination between the simulator and in-car teachers, as they reinforce each other's instruction. It is important that students establish a positive identification with one teacher, even though they may be assigned to more than one teacher during the total driver education learning experience.

Unfortunately, for administrative expediency variations of the concept of the team approach that are not educationally sound have been used. The practice, for example, of scheduling 150 or more students in an auditorium with one instructor and one or more teacher monitors does not represent the team teaching concept and should be strongly discouraged. Although this expediency may meet a time requirement, it is ineffective in enabling students to achieve the desired educational objectives. The basic philosophy and concepts of team teaching are violated.

Driver education is becoming increasingly more technical in content and methods. Teaching about alcohol and drugs has an intricate relationship to the driving task. The increased use of two-wheeled vehicles, both bicycles and motorcycles, has added a new dimension to the traffic problem. Teachers who have had special courses of instruction in the use of two-wheeled vehicles should be included in the team teaching configuration.

Team teaching does offer a good opportunity for teachers to meet and plan together, thereby increasing teaching effectiveness. When teacher competencies and interests are utilized to the greatest extent possible, the quality of instruction and student interest can be greatly enhanced.

Resource Personnel

When appropriate, experts in related fields of traffic safety should be invited to address the class. Presentations are more effective when groups of normal class size are addressed rather than when several classes are gathered in an auditorium. A uniformed traffic officer should be invited to address the classes. He should help students develop good attitudes about the problems involved in traffic law enforcement and the need for enforcement. Insurance agencies also have experienced speakers who welcome the opportunity to address prospective new drivers on aspects of automobile insurance which the average teacher may not be aware of. Western Insurance Information Service (WIIS) and many automobile clubs will provide speakers on request.

So that a profitable learning experience is provided for the class, the following guidelines are suggested:

1. Students and teachers should prepare a list of guide questions to be used by the speaker prior to the class visit.
2. The speaker should be experienced in addressing a particular age group, and his explanations should be within the comprehension of those being addressed.
3. The speaker's information should supplement class instruction.
4. The class should be made aware of the nature and content of the visitor's address. Satisfactory student behavior and performance will help establish good public relations.
5. The teacher should remain in the room during the entire presentation. The teacher should not view the presentation as a means of escaping responsibility.

Multiple-Car Method

A multiple-car facility is an off-street paved area incorporating a variety of realistic traffic situations that help students develop identification, prediction, decision, and execution skills. While the development of manipulative skills is basic to the multiple-car method, the student's ability in a "traffic mix" situation to identify, predict, and decide must also be emphasized.

Considerable confusion exists over the description of multiple-car facilities. Some facilities are little more than parking lots, athletic fields, or similar areas used to supplement on-street driving instruction; these areas are used primarily for beginning lessons and for initial driving experience away from traffic. In some schools as many as three or four dual-control cars, with a teacher and two or three students in each car, may all be used in such an area at the same time. Nevertheless, whatever value these areas may have, they are not truly representative of the multiple-car facility, nor should they be so labeled.

Curricular Objectives

The multiple-car method addresses itself to two broad categories of objectives: those involved with basic control (manipulation) and those involved with conflict avoidance.

- *Manipulation objectives.* Given a multiple-car driving facility, the student will:
  1. Identify the car, driver, and roadway factors that may affect vehicular control or maneuverability.
  2. Predict the car, driver, and roadway factors that will affect vehicular control or maneuverability.
  3. Decide the appropriate response to maintain vehicular control and maneuverability.
  4. Execute appropriate action to retain control and maneuverability of the vehicle.

- *Conflict avoidance objectives.* Given a multiple-car facility designed to simulate critical situations, the student will:
  1. Identify those vehicles, pedestrians, objects, or obstructions with which he might have conflict.
  2. Predict the possibility of conflict with vehicles, pedestrians, or objects.
  3. Decide the appropriate driver response to avoid or reduce these conflicts.
  4. Execute appropriate driver actions to avoid or reduce conflict.

Advantages of the Method

The controlled environment provided by a multiple-car facility has several instructional advantages:

1. Helps the student develop basic manipulative skills
2. Helps the student develop independence and confidence in driving ability
3. Helps the student develop a sense of responsibility
4. Allows the teacher to recognize individual student differences
5. Helps the student develop perceptual habits
6. Provides flexibility, allowing for a wide variety of situations
7. Allows the teacher to do a more efficient job of instruction
8. Allows the student to drive various makes and models of cars
9. Allows a traffic mix comparable to on-the-street driving

Multiple-Car Facilities

Multiple-car facilities appropriate to the purpose of this publication are of two fundamental types: basic skills and traffic mix.

- *Basic-skills facility.* This facility is designed to provide practice in a variety of driving activities (e.g., parallel parking, garage parking, curb parking, turns, starting and stopping, and backing). The facility may double as a parking lot when it is not being used for driving practice.
- *Traffic-mix facility.* This facility is designed to provide driving practice in various traffic situations (e.g., merging, passing, and lane changing). The minimum size for this type of facility is approximately 200 feet by 400 feet. Instructional activities are devoted to the development and perfection of basic control and maneuverability of the vehicle in traffic mix and interaction.

The physical characteristics of a multiple-car facility should include the following:

1. Areas designed for the development of the human functions of driving
2. Road surfaces wide enough for two-way and multiple-lane traffic and long enough for passing
3. Intersections, curves, grades, merge, diverge, skid pan, and off-pavement
4. Lane markings, signs, and signals[2]

Examples of basic-design and traffic-mix facilities presently in use in California are:

Madison Senior High School
San Diego City Unified School District
4833 Doliva Drive
San Diego 92117

Mira Loma High School
San Juan Unified School District
4000 Edison Avenue
Sacramento 95821

Early instruction on a traffic-mix facility is devoted to the development of basic control and maneuverability of the vehicle. The final lessons are structured to emphasize traffic mix and interaction. The student who is progressing at an advanced rate will be practicing the fundamental principles of driver education in a traffic-mix situation, while the slow learner will have the opportunity to continue practicing basic skills. The traffic-mix range will also allow for the inclusion of advanced driving exercises on a limited basis.

Parent Participation

A parent-participation program is one means of providing supplemental behind-the-wheel instruction for students enrolled in the laboratory phase of driving instruction. Among the many important achievements that a well-designed parent program can develop are the following:

1. Familiarize parents with the methods used by driver education teachers that help develop in their children safe and efficient vehicle operation.
2. Acquaint parents with their role and responsibilities after driver training course completion and prior to driver licensing.

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[2] *The Multiple-Car Method: Exploring Its Use in Driver and Traffic Safety Education.* Washington, D.C.: Highway Users Federation, 1972. p.4.

3. Acquaint parents with their role and responsibilities after the students are licensed.
4. Update the parents' knowledge of safe driving practices and principles.

A Demonstration Program

A pilot parent-participation program involving six school districts in the Sacramento and San Francisco Bay areas, which was funded by the California Office of Traffic Safety, was conducted in 1972 with encouraging results. Persons interested in beginning a similar program may secure information, guidelines, and sample instructional materials from the driver education unit in the State Department of Education.

The following is a brief description of the operational procedures that were developed and implemented by the parent participation project staff in the pilot program:

1. The district board of education and administration should approve the inauguration of the parent participation program as a supplement to the driver education program.
2. The district driver education supervisor, as well as the driver education instructors, should be willing to participate in and organize the program.
3. A letter explaining the nature and purpose of the program should be sent to all parents who have a student enrolled in the laboratory phase of the driver instruction program.
4. An invitation should be extended to the interested parents to attend a meeting at the school. The invitation should specify room location, time, and date.

Parents' Meetings

Persons responsible for planning and conducting a parents' meeting should consider the following:

- *Facility*
  1. The location of the meeting room should be well-marked. Directional signs may be needed at various points throughout the school campus (e.g., parking lots, hallways of large buildings, and so forth). A sign on the door of the meeting room may be helpful.
  2. The room should be comfortable and of appropriate size to accommodate the number of parents expected to attend.
  3. Chairs should be arranged so that every participant can view the entire proceedings comfortably.
- *Instructional aids*
  1. If any of the following equipment is needed, it should be tested and adjusted before the meeting begins:
     a. Chalkboard
     b. Film projectors (slide, filmstrip, and movie)
     c. Magnetic board
     d. Overhead projector
     e. Reaction-time apparatus
     f. Simulators
     g. Steering mock-ups
     h. Closed-circuit television equipment
     i. Projection screen
  2. The use of some visual aids may require a darkened room.

With regard to the management of the meeting, the leader should do the following:

1. Observe a definite time schedule.
2. Explain the purposes and objectives of the program.
3. Explain the parents' role in both the meeting and the total program.
4. Encourage parent participation.
5. Explain the national, state, and local traffic-accident problems.
6. Display, identify, and explain the appropriate DMV licensing forms.
7. Introduce the other driver instructors.
8. If a printed program is distributed, follow it.
9. Show your enthusiasm for the program.

Supplemental Instruction

Parents may be encouraged to become involved in the supplemental instructional program by attending a series of class sessions taught by the driver education staff. The lesson planning should be geared to the regular high school course and should parallel the student's actual driving progress. The parent-supervised practice sessions are conducted in the family car and are usually given during evenings and/or weekends. The instructor may suggest various locations for the initial parent-student practice sessions. The frequency and total number of parent instructor class sessions may be modified as desired.

To assist the parents in their role as instructors, the pilot-project staffs developed a series of lesson plans. The plans explain in sufficient detail how to perform each driving maneuver, while incorporating the essentials of safe vehicle operation and defensive driving. Samples of the plans are available from the driver education unit of the State

Department of Education. Additionally, the consultants of the State Department of Education will upon request help schools in the development of the parent programs.

The parent-student practice time cannot be substituted for the in-school instruction time; all parental instruction is in addition to that provided by the school and is designed to follow the correct methods already presented by the teachers. During the parental indoctrination sessions, it must be emphasized that an instruction permit is required prior to starting supplemental instruction. Parents should be encouraged to enroll in the district adult school program while attending the parent participation classes; in fact, the parent program could be made a regular course in the adult school program.

Courtesy of San Diego City Unified School District

Driver education instructors often have opportunities to integrate special instructional media into the curriculum.

CHAPTER 5

PROGRAMS FOR THE HANDICAPPED

Many exceptional students are capable of driving safely when they have had adequate individualized driving instruction. Students for whom the driving classes have been approved should be so instructed that they learn to compensate for their handicaps as required for safe driving.

Many handicapped students may not be given an opportunity to learn to drive because (1) teachers do not feel qualified—through preparation and experience—to teach driver training to these students; (2) special adaptive devices are not provided for vehicles used in the driver training program; or (3) the special driver training program does not have sufficient administrative support.

Economic, vocational, professional, and social problems may arise when handicapped students are unable to drive. They may be compelled, for example, to become recipients of welfare assistance or if they drive without adequate instruction, a potential menace on the streets and highways. Without independent transportation they may have to forego posthigh school training and education; and they may lose self-esteem because they are unable to socialize freely.

The provision of an adequate driver education program for exceptional pupils should be approached as a cooperative effort of teachers, administrators, parents, and medical, rehabilitation, and vocational personnel, along with the Department of Motor Vehicles, law enforcement agencies, insurance companies, and other organizations and agencies. It is only through cooperative effort that the type of program that every pupil in California has a right to expect can be attained.

Instructor Requirements

The instructor who undertakes the teaching of driver training to handicapped students must meet the requirements for teaching driver training as specified in the Education Code and the requirements of the school district.

An instructor *should* also (1) possess a credential authorizing the teaching of a category of handicapped minors; or (2) have satisfactory experience in teaching a category of handicapped minors; or (3) have taken formal college coursework or attended approved workshops in the areas of methods, content, and other preparatory segments of teaching that are related to driver education for the exceptional child.

Ideally, an instructor should be a highly successful "driver training" teacher, should have taught handicapped minors (such as deaf, retarded, or orthopedically handicapped), and should have an earnest desire to work with exceptional pupils. There are no substitutes for experience, talent, understanding, and desire, but of the four, the latter is paramount.

Special Equipment Requirements

Orthopedically handicapped students may require special mechanical devices to enable them to operate a motor vehicle safely. These devices include hand-operated accelerator and brake controls, left-foot accelerator attachments, steering aids, special seat belts and harness, power seats, power windows, and power lifts. Students with limited head and trunk movement may require additional mirrors which eliminate "blind spots" and provide maximum side and rear visibility.

Eligible Pupils

Education Code Section 17305.7 states that reimbursement *up to* $200 per pupil is available to any school district which provides driver training instruction to a physically handicapped, educationally handicapped, or mentally retarded pupil. It further states that these students must receive sufficient training to prepare them for the driver's license test at the Department of Motor Vehicles.

Physically Handicapped

"Physically handicapped minor" is defined in Education Code Section 6801 as: ". . . a physically defective or handicapped person under the age of 21 years who is in need of education." California Administrative Code, Title 5, Education, Section 3600, states that physically handicapped minors eligible for admission to special education programs are any of the following (only the paragraphs applicable to driver education are presented):

(a) **The Deaf**. A minor is deaf if he comes within any of the following descriptions:
  (1) He has a hearing loss in his better ear that is from 70 decibels in the speech range to inability to distinguish more than two frequencies at the highest measurable level of intensity, with the result that he cannot understand and acquire speech and language through the sense of hearing, even with sound amplification.
  (2) He has a hearing loss in his better ear that averages 50 or more decibels in the speech range, and because he has had a sustained loss from babyhood or very early childhood, does not learn language and speech through the unaided ear.
  (3) In the combined opinion of a hearing specialist and a qualified educator, he would benefit from the special educational facilities provided for deaf minors.

(b) **The Severely Hard-of-Hearing**. A minor is severely hard-of-hearing if he comes within any of the following descriptions:
  (1) He has a hearing loss in his better ear that is from 45 to 70 decibels in the speech range and, as a result, suffers delayed speech and language development to such an extent as to hamper his progress in a regular classroom at a rate commensurate with his intellectual ability.
  (2) He has a hearing loss in his better ear that averages more than 30 decibels in the speech range; the loss was sustained in babyhood or early childhood, and it has resulted in delayed speech and language development.
  (3) He has a hearing loss in his better ear that averages more than 30 decibels in the speech range; the loss has been diagnosed by a licensed physician and surgeon to be progressive in nature, and the minor, because of delayed speech and hearing development, has need for placement in a special day class or integrated program.

(c) **The Moderately Hard-of-Hearing**. A minor is moderately hard-of-hearing when all of the following statements apply to him:
  (1) He has a hearing loss in the better ear of from 20 to 40 decibels in the speech range.
  (2) His speech or language is impaired and such impairment presumably is associated with his hearing loss.
  (3) His hearing loss interferes with his progress in a regular classroom.
  (4) His individual and educational needs indicate placement in a remedial class.

(5) A licensed physician and surgeon, audiologist, or teacher (or specialist) holding a credential in the area of the speech and hearing handicapped, has assessed the extent of the minor's hearing impairment and has recommended that he receive remedial instruction.

(e) **The Partially Seeing**. A minor is partially seeing who comes within either of the following descriptions:

(1) His visual acuity is 20/70 or less in the better eye, after the best correction, and he can use vision as a major channel of learning.

(2) His vision deviates from the normal to such an extent that, in the combined opinion of a qualified educator and either physician and surgeon or an optometrist, he can benefit from the special educational facilities provided partially seeing children.

(f) **Orthopedic or Other Health Impairment**. A minor is orthopedically or other health impaired if a licensed physician and surgeon finds in his diagnosis that the minor has a serious impairment of his locomotion or motor function and that the impairment was caused by crippling due to one of the following.

(1) Cerebral palsy.
(2) Poliomyelitis.
(3) Infection, such as bone and joint tuberculosis and osteomyelitis.
(4) Birth injury, such as Erb's palsy or fractures.
(5) Congenital anomalies, such as congenital amputation, clubfoot, congenital dislocations, or spina bifida.
(6) Trauma, such as amputations, burns, or fractures.
(7) Tumors, such as bone tumors, or bone cysts.
(8) Developmental diseases, such as coxa plana, or spinal osteochondritis.
(9) Other conditions, such as fragile bones, muscular atrophy, muscular dystrophy, Perthes' disease, hemophilia, uncontrolled epilepsy, or severe cardiac impairment.
(10) Drug dependency.
(11) Some other cause described in the physician's written diagnosis.

(i) **Other Physically Handicapped**. A minor is "other physically handicapped" if he comes within either of the following descriptions:

(1) He has a physical illness or physical condition which makes attendance in regular day classes impossible or inadvisable.

(2) He has a physical impairment so severe as to require instruction in remedial (formerly special) physical education.

Educationally Handicapped

Education Code Section 6750 defines educationally handicapped students as pupils under the age of 21 years "who, by reason of marked learning or behavior disorders, or both, cannot benefit from the regular educational program, and who, as a result thereof, require . . . special education programs. . . . Such learning or behavior disorders shall be associated with a neurological handicap or emotional disturbance and shall not be attributable to mental retardation."

California Administrative Code, Title 5, Education, Section 3230 states that an educationally handicapped minor is eligible for admission to a program if the pupil's handicaps have been determined to be a specific learning disability, specific behavior disorder, or a serious emotional disturbance.

Educable Mentally Retarded

Education Code Section 6901 states " 'Mentally retarded pupils' means all pupils under the age of 21 years who because of retarded intellectual development as determined by individual psychological examination are incapable of being educated efficiently and profitably through ordinary classroom instruction."

Education Code Section 6902 states:

> The education of mentally retarded pupils who are of compulsory school age and who may be expected to benefit from special educational facilities designed to make them economically useful and socially adjusted shall be provided all eligible pupils in the manner set forth in sections 6901 to 6913, inclusive, and in sections 895 to 895.10, inclusive. Such special education may be provided to mentally retarded pupils who are between five years nine months and six years of age and those above compulsory school age and less than 21 years of age.

California Administrative Code, Title 5, Education, Section 3402, states:

> The responsibility for assignment of a minor to any special school or class, integrated program of instruction, or experimental program rests with the administrative head of the school or employee of the school district whom he designates. He shall not make the assignment until he has received the local admission committee recommendation and its certification that the parent or guardian has been consulted as required by Education Code Section 6902.5. Upon the recommendation of the local admission committee he may assign a minor a trial placement, with dates designated for assessment of the minor's adjustment.

Placement and Instructional Procedures

Exceptional pupils are most often in special day classes or in segregated instructional programs. Many schools have "integrated" programs in which the exceptional pupil may take some classes with "regular" students or become involved in sheltered workshops or work-study programs. These variations can cause scheduling difficulties for the driver education teacher, but the special education teacher can arrange for a student's enrollment in the driver education class and laboratory.

It is essential that the handicapped pupil have completed, or be enrolled in, the classroom phase of driver education. Each pupil should obtain an instruction permit from the Department of Motor Vehicles.

Handicapped students may become frustrated if they are placed in a situation which suggests competition with nonhandicapped students. Thus, scheduling of driving practice sessions for handicapped students may require special efforts to ensure homogeneous student groupings. Once the teacher has identified the special needs of each handicapped student, the teacher can modify the instructional program to meet those needs.

A preliminary assessment is strongly recommended to determine the basis for instructional planning and the realistic outcomes one might expect of the student. Following the assessment, the course becomes a matter of instruction modified to meet the capabilities of the pupil, culminating in the student's obtaining a driver's license. Some of the differences one might find within the categories of "eligible pupils" as previously defined are described in the following paragraphs.

Physically Handicapped

Of those who are classified as physically handicapped, specially designed driver education classes are indicated only for certain groups. Obviously, driver education for the blind is out of the question; but certain other physically handicapped persons, such as the speech handicapped, can usually be easily assimilated into classes for "regular" students. Those groups for which special offerings must be considered include the deaf, the severely hard-of-hearing, the moderately hard-of-hearing, the partially seeing, the orthopedically handicapped, and mothers-to-be.

The deaf. The deaf should be divided into (1) those deaf at birth or before communication skills were developed; and (2) those who became deaf after aquiring speech and communication skills.

There is often a vast difference between individuals in the first group and those in the second group because those who were deaf at birth may function as though retarded; they may be very difficult to teach because of their inability to communicate and comprehend. The "predriving" instruction may take a year or more. Sometimes these students may be unable to become licensed because they cannot pass the written or oral test for the instruction permit. Caution should be exercised in giving such pupils behind-the-wheel instruction prior to the acquisition of a learner's permit to prevent having a driver who cannot legally operate a vehicle.

Persons in the second group are usually as capable as any "hearing" person might be when it comes to comprehension, communication, and mastery of the inherent components of the driving tasks.

The severely hard-of-hearing. Persons who are severely hard-of-hearing may often be considered by others as being totally deaf, but they usually possess comprehension and communication skills requisite to driving.

The moderately hard-of-hearing. Students who are moderately hard-of-hearing can usually be taught with regular students, but care should be exercised by the instructor in determining that the hearing loss is not bordering on being severe and progressive in nature.

All the foregoing, and especially the deaf and the severely hard-of-hearing, would require an instructor who has skills in sign language and/or finger spelling.

The primary point to remember is that these students do not react to auditory cues, so they must be taught to make much better or perhaps more consistent use of their vision. Mirrors which uncover "blind" spots and provide maximum front, side, and rear visibility are necessary.

Emergency vehicles present no problem if correct instruction has been given. The deaf person must observe that other vehicles are moving to the right and stopping, and he or she must react to this visual cue. *All* intersections should be approached with extreme case.

Once the fundamentals of driving visually have been mastered, the deaf driver gains an advantage. He or she is not distracted by conversations, radios, or other sounds and has the potential to become a safe and dependable driver.

The partially seeing. Some pupils who are identified as partially seeing are capable of passing the vision screening at the Department of Motor Vehicles and are eligible to receive instruction in driver education.

The teacher should help these students to learn to compensate for visual deficiency by leaving a greater "space cushion" around the vehicle. Above all, the pupil should understand that he or she has a limitation which should never be underestimated. Partially seeing students will probably require more instructional time to learn how to compensate for their disability than students with normal vision.

Orthopedically handicapped. The orthopedically handicapped and related health-impaired persons include those who have physical handicaps that are visible, such as paralysis, loss of one or more limbs, cerebral palsy, and deformities. It also includes individuals who have conditions which are not visible, such as hemophilia, tumors, cardiac deficiency, asthma, and leukemia. This latter group often requires special attention because of hidden dangers in individual tolerances to stress, fatigue, and other physical and emotional problems.

The orthopedically handicapped pupil who is confined to a wheelchair or who wears cumbersome braces or other orthotic devices may need additional space. He or she may have difficulty in entering the rear seat in some cars. Sometimes it is necessary to place the wheelchair in the rear seat if the trunk is too small; thus, the rear seat must be removed. It is wise to limit the student load to two pupils when the foregoing conditions exist, and it may be necessary to take only one passenger if it is impossible or very difficult to transfer from front to rear seats in the driver education car.

The teacher should evaluate each pupil with regard to (1) ability to get in and out of the vehicle; (2) physical limitations that might affect ability to operate the driving controls; (3) overall maturity level; and (4) desire and need to learn to drive. Above all, the student should be given the opportunity to prove that he or she can or cannot function well enough to drive safely.

The teacher of the physically handicapped pupil must be aware of the problems of each student; these could include tolerance to instruction, relief of pressure to prevent decubitus ulcers (pressure sores), toilet problems, limited range of motion, and perceptual difficulties.

The mechanics of teaching require ability to improvise and to modify terminology to fit the individual case. For example, the terms "hand" or "foot" may not be applicable to one who is an amputee or paralytic, and the use of various mechanical devices requires a new understanding and terminology. No substitute exists for experience, desire, intelligence, and adaptability of the teacher, who, if possessing these qualities, will likely succeed.

Other physically handicapped. The most common student in the "other physically handicapped" category is termed the "pregnant minor." There has been some controversy as to the advisability of offering driver education laboratory to these girls, but there can be no valid justification for discriminating against them. It should be remembered that they too have a right to equal educational opportunity.

Students categorized as "other physically handicapped" require practical consideration. In the case of the pregnant minor, the teacher should be aware of the particular problems a specific girl may have. Correct use of seat belts and shoulder harness may require special attention, as will seat adjustment for comfortable driving position. Information on postnatal in-car safety should be provided each girl, and information on infant- and child-restraint seat devices should be made available.

Educationally Handicapped

The educationally handicapped student is frequently of normal or above-normal intelligence. However, such students may exhibit undesirable behavior characteristics and may be a problem in some classroom settings. This should not be the case with driver education, for the course has such high motivational impact that most educationally handicapped pupils perform as well as other students.

The educationally handicapped student usually has a range of comprehension considered as normal. (However, the student may lack reading skills. This shortcoming necessitates preparation for the oral test at the Department of Motor Vehicles.) Much less repetition of the various components of the driving task is necessary for this student than for the educable mentally retarded, and one should expect the educationally handicapped student to become an adept and conscientious driver.

The educationally handicapped student should be prescreened by the driver education laboratory teacher, who should read the student's cumulative record, noting the student's test scores (particularly achievement tests). The teacher should also discuss the student with the counselor, other teachers, school nurse, doctor, and parents. In other words, the teacher should know the proclivities of such students and work with them within their limitations. The educationally handicapped youngster should be helped to understand his or her *role* as a safe driver, in addition to being helped to acquire driving skills.

Educable Mentally Retarded

Educable mentally retarded students as a group are very successful in attaining the skills necessary to acquire a driver's license. When working with an educable mentally retarded person, the instructor should realize that this person (1) may be two or more years behind in achievement; (2) thinks more slowly; (3) has difficulty retaining information; (4) has a limited attention span; (5) has trouble adjusting to new situations; (6) thinks in specifics rather than in generalities; (7) has limited ability to transfer learning; (8) has trouble with abstract concepts; and (9) has limited ability to observe and communicate what has been perceived.

The teacher of the educable mentally retarded child should:

1. Refrain from expecting the child to begin at a level of instruction beyond his or her capabilities.
2. Help the student to learn correctly the *first* time.
3. Use drill and repetition on one concept at a time.
4. Limit driving time to 30 minutes.
5. Plan carefully.
6. Proceed from the known to the unknown, taking little for granted.
7. Schedule a large number of successful learning activities to create a mood for effective transfer.
8. Use concrete materials and provide for a multisensory approach to learning.
9. Be patient when applying defensive driving techniques which require verbal communication.

The teacher should show the child that he or she is interested in the child and should try to end each lesson on a note of success, even if a review lesson must be repeated. The student should not be made to feel that he or she has been a failure and should never be given any indication of teacher displeasure with the student's performance. This practice is suitable for all individuals, but even more so with the educable mentally retarded. When a mistake occurs, the teacher can simply suggest other attempts and can talk the student through the maneuver.

Program Operation

Exceptional students seeking to enroll in the laboratory phase of driver education must have been formally designated as physically handicapped, educationally handicapped, or educable mentally retarded in accordance with the provisions of the Education Code.

Health personnel in the school district should issue some type of health clearance for each student before the student commences with behind-the-wheel instruction. This approval may be granted by the school nurse alone or in conjunction with the school doctor. In some cases opinions of other medical professionals, including private physicians, may be sought. In general, the student must be required to demonstrate acceptable visual acuity and, if subject to a loss of consciousness, evidence that the condition has been controlled by medication.

Additional sources may provide valuable information about a prospective student, including cumulative achievement records; school health records; school counselors (including special vocational counselors); teacher aides or attendants; physical therapists; physical education teachers; and parents.

Consent of Parents

In addition to a health clearance, the student who is under eighteen years of age must obtain the consent of his or her parents or legal guardian in order to receive in-car instruction. Occasionally, parents may resist signing the prescribed form. In such cases it is advisable for the teacher to contact the parents personally and explain the purpose of the consent form.

Completion of Forms

Several forms must be completed before formal driver education instruction may begin. Extreme care must be taken so that the forms are completed accurately. Required forms are the same as those used in the regular driver education program, but there may be a need for additional forms because of the requirements of a particular school district.

Assignment of Students

Assignment of exceptional students to class periods must be a matter of concern for the teacher. Ideally, there should be flexibility in scheduling. Several assignment factors are to be considered, including the following:

1. Does the student take medication at a time of day which might affect driving performance?
2. Will the presence of another student negatively affect the driving performance of a particular student?

3. Is there any reason why the student is likely to function better at a special time of the day?
4. Which period of the day will cause the least inconvenience for the classroom teacher and the student?
5. When might the traffic density be most favorable to the student's learning abilities?

Certain members of the school staff must be informed about the time of day and the number of days that the student will be enrolled in the laboratory phase of driver education. These persons should also be informed when there is any variation in the schedule, such as for a trip to the Department of Motor Vehicles. It is a matter of courtesy and good public relations that the school staff be kept informed of the student's scheduling and progress. The principal, vice-principal, and other staff members can be very helpful when they are kept informed and thus feel included in the program.

Adapting the Vehicle

The success of an orthopedically handicapped driver may be dependent on a vehicle that has been adapted to his or her needs. It is critical that every control be arranged in the best position for the individual. Something as simple as the positioning of a steering knob may have a major effect on driving performance.

Often the handicapped driver will be able to drive without any special adaptation of the vehicle, but some will require a variety of special adjustments. Individual differences dictate that a driver education car be available that has great versatility. Power steering, brakes, seats, and windows are most desirable, and a tilting, telescoping steering wheel can be very helpful. Some important considerations for adapting a vehicle to a particular student are the following:

1. *Line of sight.* Student eye level should be at least two inches above the top of the steering wheel. The teacher should check this from inside and outside the car. To adjust the line of sight, the seat can be adjusted, cushions placed underneath and/or behind the body, and a tilting and/or telescoping steering wheel used.
2. *Safety belts.* Seat and shoulder belts are of special value to the handicapped driver because they assist the driver in keeping his or her balance, and they provide the handicapped driver with a feeling of security.

Courtesy of Los Angeles Unified School District

An indispensable part of an effective motorcycle safety education program is an instructor who has had specific instruction in the safe operation of a motorcycle.

CHAPTER 6

MOTORCYCLE SAFETY EDUCATION

Within the past decade the increase in motorcycle registrations has been phenomenal. Forecasters predict a continual increase in sales of motorcycles, with leveling off not in sight. Climatic conditions in California are extremely favorable for this means of transportation, and the problems of assimilating the motorcycle into our highway system are self-evident.

The state government and school districts must assume responsibility for an adequate program of motorcycle safety instruction. Both classroom instruction and instruction in actual vehicle operation are necessary for students to develop proper attitudes and skills. An expansion of the existing driver education program to include motorcycle safety instruction appears to be a logical development. Teachers who have had specific instruction in the safe operation of a motorcycle would appear the major ingredient of an effective and worthwhile program. Colleges and universities specializing in teacher preparation should provide courses in motorcycle education, including both theory and practice. These courses should be made immediately available and readily accessible for potential instructors.

Program Administration

All secondary students should have an opportunity to obtain the required motorcycle safety instruction necessary for state licensing and for their own safety. School districts should provide instruction for interested students who have reached legal riding age, and the state government should adopt standards appropriate for testing and licensing. Students must be encouraged to operate the vehicle in compliance with existing traffic regulations. Civic and traffic oriented organizations should also assume responsibility in encouraging teacher preparation in this area of teaching. Unless all interested agencies cooperate with the schools in providing adequate instruction, serious consequences could result.

Instructor Requirements

It is recommended that the motorcycle instructor have completed a course in motorcycle safety as a minimum requirement for certification. It is further recommended that standards for an instructor's license be established.

Equipment Requirements

Cycles can be obtained for the instructional program on much the same basis as driver education cars. Leading state and national distributors, through their local dealers, can provide vehicles for instructors as a public relations gesture. Insurance coverage recommended by a reputable cycle dealer must also be obtained.

All participating students should be outfitted with regulation safety equipment, including the following: helmet, gloves, goggles with safety lenses, and light-colored clothing appropriate for motorcycle instruction. If students provide their own helmets, the helmets should meet safety standards.

For cycle instruction a practice area is required. The area may vary in size and shape; a minimum of 200 feet by 200 feet may suffice. It should be level, hard-surfaced, and free from obstruction. In a limited area, four to six vehicles can provide adequate traffic exposure.

Legal Considerations

The class may be organized on an extracurricular basis; however, it is recommended that classes be scheduled during the regular school day and that credit be given proportionate to the time expended. The instructor should acquaint the students with the provisions for licensing established by the State Department of Motor Vehicles.

California law requires that a driver's license be endorsed to permit operation of a two-wheeled motorcycle. A class 4 endorsement meets this requirement. Licensing for minors is somewhat similar to that for adults; that is, a signature by a parent or guardian is required. Permits may be obtained at age fifteen and one-half. If the applicant is under seventeen and one-half, such a permit may not be used for operation of a motorcycle until he or she has completed a course in automobile driver education and driver training instruction. Additional licensing provisions and restrictions are explained in the *California Driver's Handbook.*[3] The student should be advised that regulations are subject to change.

There is no special reimbursement available to the district for motorcycle instruction such as that provided for automobile driving instruction under the Penalty Assessment Fund.

Parental Support

It is highly recommended that parents or guardians be informed of the motorcycle program established in a school district. Communications from the school to the home should clearly explain that the principal course objective is to develop safe motorcycle operators.

It is strongly suggested that the district develop a parent approval form for motorcycle instruction which requires the signature of the parent or guardian. Completion of the card can be required as a prerequisite for enrollment in the course.

Motorcycle instruction is a prompt and effective attempt to reduce the number of deaths and injuries caused by the sudden influx of two-wheeled vehicles. Unfortunately, as with automobile instruction, a planned instructional program did not parallel the increase in the number of motorcycle operators. An informed parent is more likely to be a supporter of a safety oriented program. Administrators, counselors, and teachers must have positive and accurate information about the purposes and objectives of all innovative programs.

Scheduling Instruction

A course in motorcycle instruction may be scheduled in several ways:

1. Incorporated as an integral part of the comprehensive traffic education program. This approach is possible when the instruction is scheduled as a semester course.
2. Presented as a separate course extending over six weeks, during which time students receive actual riding instruction and practice.

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[3] *California Driver's Handbook.* Sacramento: California State Department of Motor Vehicles, 1975.

3. Scheduled as a minicourse of lesser duration, with special emphasis on the riding task. Actual riding experience may or may not be included.

The prevailing local school curriculum structure will generally dictate the most desirable scheduling arrangement.

Characteristics of the Motorcycle

The task of riding a motorcycle involves the physical, procedural, perceptual, and behavioral skills necessary to control the human/vehicle system and its relationship to the dynamic traffic environment which confronts the rider in moving from one place to another.

The Riding Task

The competencies involved in the "riding task" may be categorized in four areas of skill, each dependent on knowledge and interdependent with each other.

1. *Physical skills*–the manipulation, coordination, and movement of motorcycle controls, which have an immediate causal relationship to the movement and stability characteristics of the vehicle
2. *Procedural skills*–the step-by-step methods involved in performing subtasks such as prestarting check, starting, getting underway, shutdown, parking, approaching intersections or critical situations, operating on limited access roads, and responding to emergency situations
3. *Perceptual skills*–the skills of expecting, searching, identifying, predicting, and deciding are the prerequisites for successful perceiving, which involves selectively receiving and evaluating stimuli from the traffic environment in order to negotiate imminent critical conditions
4. *Behavioral skills*–the behavioral skills involving the control of all the determinants, such as values, needs, attitudes, feelings, beliefs, aspiration levels, emotions, mental health, and ability to avoid loss of competency due to chemical impairment (Each skill exerts a powerful influence on the performance of the other skill areas.)

The driver must understand the competencies needed in the "riding task" in order to grasp the relationship between the motorcycle and other highway users, including the motorcycle's effect on the driving task.

Operational Characteristics

Unlike four-wheeled vehicles which may be controlled only as to *direction* and *speed*, the two-wheeled vehicle must be additionally controlled as to *roll*, *pitch*, and *yaw*. (Roll, pitch, and yaw may be thought of as existing for four wheeled vehicles under exceedingly extreme conditions; however, these three movement characteristics are continuously vital to the stability of the two-wheeled vehicle.) The operator must use the roll, pitch, and yaw variables to advantage in various situations.

The motorcycle has unique controls which require of the motorcycle operator physical skills of a nature different from those of the automobile operator. The front and rear brakes are operated separately and require skillful techniques. The right hand actuates the front brake lever, which is located on the right end of the handlebars. The rear brake is controlled by a foot-actuated lever, which may be found on either side, depending on the model. Acceleration and deceleration of the engine is controlled by a twist-grip throttle at the right end of the handlebars.

The direction of the motorcycle is primarily controlled by leaning rather than by turning the handlebars. Nearly all motorcycles have manual transmissions actuated in combination with a hand-clutch lever located on the left end of the handlebar. In addition to the moveable controls, the motorcycle is guided by fixed controls, such as the footpegs, which not only perform a function in direction control but also are critical to the stability of the vehicle. The footpegs enable the rider to regulate the center of gravity of the human/vehicle system.

The human/vehicle system is a way of describing the close interrelationship between the movements and placement of the rider and the machine. The procedural skills of the motorcyclist are unique as a result of the unique controls and unique movement and stability characteristics of the vehicle.

Characteristics in Traffic

The motorcycle is very often poorly perceived in traffic. The vehicle is unfamiliar to many other highway users unaccustomed to relating to it as a sharer of the road. Because of its size and position in traffic, many drivers either do not identify the motorcycle or misjudge its speed and predict its behavior incorrectly. The motorcyclist must use many techniques to enhance visibility and communicate intentions; and the other highway users must make every attempt to search for and identify the cyclist.

Many conflicts between motorcycles and other vehicles may be caused in part by an assumption of the noncycle operator that an automobile is invulnerable because of the smaller size of the motorcycle. The automobilist's vulnerability in a collision with a cycle, however, does exist, although the severity of a collision with a cycle may be less than that of a collision with a larger vehicle. Other poor judgments in relation to the motorcycle in traffic may be the result of a prejudice toward motorcycles and motorcycle operators in general.

Sociological Characteristics

In modern society the motorcycle has become identified as a recreation vehicle as well as a roadway transportation vehicle. People of all ages and from every segment of society are operating motorcycles. One of the significant reasons for this development is the very nature of the vehicle's movement and stability characteristics.

Because of the ability to control roll, pitch, and yaw, the operator experiences satisfaction at various levels of mastery. The responsiveness of throttle and brakes and the freeness of movement without being enclosed within a vehicle gives the motorcycle operator enjoyment of movement which may not otherwise be experienced. In addition, the human/vehicle system of operation, which involves the whole body in a complex movement with the vehicle, may further increase the appeal of motorcycling.

Comparison with Automobile Driving

The motorcycle "riding task" is a function of concepts which may be categorized as follows: (a) concepts which are the same as the concepts involved in the "automobile driving task"; (b) concepts involved in the "driving task" but more critical to the "riding task"; and (c) concepts unique to the "riding task."

Concepts Unique to the Riding Task

Motorcycle riding in comparison to automobile driving is generally more demanding of the operator's skills. Especially pertinent to the cyclist are several critical physical and perceptual skills that must be mastered, all of which relate to the unique characteristics of the human/cycle system.

Motorcycle movement characteristics. The automobile has static stability, which means it remains upright at rest, balanced on four wheels, without effort from the operator. Unless extreme forces are exerted on the vehicle (as when an automobile is driven off a cliff, when a collision occurs at high speed, or when an automobile is driven around a curved roadway with a reversed bank), the automobile does not display the characteristics of roll or pitch.

The motorcycle, which is balanced on two wheels of relatively short wheelbase, may be thought of as having dynamic stability. When the motorcycle is at rest, no stability exists; the motorcycle will display roll if not supported. When the motorcycle is in motion, some operator effort to balance is necessary. The stability increases with the speed of the motorcycle as a result of the following: (1) the increasing gyroscopic effect of the wheels; and (2) increasing vector forces on the suspension system.

When the cyclist is tracking a straight path, the need to balance decreases as the speed of the vehicle increases. Below five miles per hour, a conscious effort to remain upright may be noticeable.

Rider movements can induce roll, pitch, or yaw, in addition to changing speed or direction. The vehicle's existing conditions of speed, position, roll, pitch, or yaw may also be changed because of outside influences such as gravity, centrifugal force, inertia, traction or friction, force of impact, force of wind draft, and loss of gyroscopic action of the wheels caused by locked wheels.

Motorcycle controls. An automobile is controlled by the operator in regard to speed and direction; movement characteristics such as roll and pitch cannot be controlled. The characteristic of yaw may exist under conditions of skidding. However, because the automobile has static stability, it is not subject to the roll or pitch control loss resulting from poor yaw recovery as occurs with the motorcycle.

A motorcycle must be controlled in regard to speed, direction, roll, pitch, and yaw. Loss of control of any one movement characteristic is likely to result in loss of control of the others. The skillful rider moving through a roadway environment is making constant changes in speed, direction, roll, and pitch to control most effectively the relationship of the vehicle to the environment. Yaw is a movement characteristic which often results from a lack of control (except in sportsman uses of the motorcycle). The skillful rider should not have to control yaw frequently.

The direction of an automobile is controlled by the movement of a steering wheel, and speed is controlled with pedals for acceleration and deceleration. The speed of a motorcycle is controlled by a twist-grip throttle, a squeeze-lever front brake, and a foot-pedal rear brake. The direction of a motorcycle is controlled by the movement of the handlebars and leaning at low speed, and primarily by leaning at higher speeds.

Requisite perceptual skills. The motorcyclist must master perceptual skills which enable him or her to expect, search for, identify, predict, and make decisions involving road and traffic conditions which involve problems unique or more critical to the motorcyclist than to the automobile driver.

Requisite procedural skills. Unique to the operation of a motorcycle are prestarting procedures, starting procedures, shutdown, lane changing, placement in a lane, signaling, cornering, getting underway, approaching intersections, turnabouts, parking, freeway travel, getting "on guard" for critical situations, and reacting to emergencies.

Packaging of the operator. The automobile is said to package its occupants. Each occupant may be secured in a fixed position and restrained by the use of lap and shoulder harnesses. The interior may be padded and constructed of collapsible material, and the steering apparatus may be collapsible. The interior of the car is contained in a relatively rigid steel frame affording some protection to the integrity of the passenger compartment. Bumpers and fenders around the frame submit to impact, absorbing some of the energy of the impact.

The motorcycle does not package its riders. Harnesses would prove lethal, and the motorcycle is definitely restricted in its ability to absorb forces of impact. The decision to ride out an imminent collision or to separate from the motorcycle is highly dependent on the variables of the specific situation. Little agreement exists as to survival techniques to be employed if a crash is imminent. There are, however, some principles to follow in deciding on an action.

Concepts More Important to the Riding Task

Several factors, such as the physical condition of the operator, are more important to the safe operation of a two-wheeled vehicle than to the operation of a four-wheeled vehicle. Potential riders must become aware of these factors *before* attempting to operate a motorcycle.

Operator condition. The motorcycle operator must perform most of the mental tasks of the automobile operator in addition to those tasks unique to the motorcycle. Physically, the motorcyclist performs a more demanding task than the automobile operator. In addition to the strength and endurance factors necessary for the operation of the bike, the motorcyclist has to deal with vibration, cold, heat, roadway irregularities, precipitation, wind pressure, airborne nuisances, and the weight of a helmet.

Psychologically, the motorcyclist has a much greater challenge than does the automobile operator. The automobile has often been described as an extension of the driver's personality. The many psychological theories explaining driver behavior become magnified when applied to the motorcycle since the motorcycle is a more effective extension of personality.

The motorcycle is more responsive; the ability to roll and pitch is at the rider's command. The human/vehicle method of control, the agility, the openness to the environment, the proximity of the sound of the muffler, and the sociological implications of the motorcycle all combine to produce a more effective implement of expression and give the rider a feeling of freedom. This expressive medium, motorcycle riding, may allow the rider to work out all the ramifications of his or her personality, positive or destructive.

The rider's value system may be the single most important indicator of riding success. Maturity and self-control are even more critical to the survival of the motorcyclist than of the automobilist.

The physics of cycle operation. The motorcycle by nature is more susceptible to the effects of forces upon it than is the heavier, more stable automobile. In addition to the effect of speed and stability when operating or parking up and down hills, gravity is important to the motorcyclist in controlling roll and pitch.

Pitch affects not only the ability to brake but also acceleration, negotiation of road surface irregularities, steering, and the ability to maintain stability. That is, pitch may have an effect on speed, direction, roll, and yaw. When pitching forward, the front brake, which may control 70 percent of straight line braking ability, becomes more effective since the weight of the vehicle moves forward over the front wheel. The rear brake, however, becomes less effective since less weight is pressing down over the rear wheel.

When pitching backward, the front wheel may lose some steering potential, but it increases in effectiveness in negotiating road surface irregularities. The rear wheel, however, gains traction, which improves acceleration as long as forward movement is not sacrificed to elevation of the front wheel.

Friction is more critical to the cyclist since only two wheels contact the road surface instead of four as with the automobile. Centrifugal force is also more critical to the cyclist since it is a determinant of the amount of roll necessary to negotiate a corner. Gyroscopic action of the spinning wheels of a motorcycle increases the dynamic stability of the motorcycle. Inertia and forces of impact are much more critical to the motorcyclist since the cyclist is not packaged. The laws of physics produce a series of vector forces in the front suspension geometry which keeps the bike upright and on a straight path.

Response to road conditions. Some perceptual skills and responses to road and traffic conditions are very critical to the motorcyclist because of the poor visibility of a cycle in traffic and because of the road and traffic conditions which are unique to a cycle. Cyclists must identify clues to conditions early, make themselves visible and their intentions clear, predict accurately, and make appropriate decisions in time to make skilled and properly sequenced responses.

The motorcyclist is easily hidden in traffic, and the cyclist's speed is often misjudged. The problems of the cyclist in traffic are often not perceived by other highway users. His or her intentions are therefore often misunderstood. The cyclist must make himself or herself as visible as possible and make his or her intentions clear. The automobile driver and others sharing the road must attempt to identify the motorcycle in traffic and must understand the "riding task" in order to make accurate predictions of the motorcyclist's intentions.

The motorcyclist has increased tasks regarding position in traffic and placement within a lane, and the motorcycle must be "set up" for a greater variety of critical situations. The "setup" procedures are unique to the motorcycle.

Vehicle condition. The adjustment of equipment and vehicle condition are more critical to the motorcycle operator than to the automobilist. Brake, throttle, and clutch adjustments must be checked before each outing. The condition of tires is more critical for a two-wheeled vehicle, which has only two traction points and whose tires perform a more complex function than do automobile tires. The adjustment of the drive chain is a unique but most critical element of a cyclist's survival. Even the tightening of nuts and bolts may be a frequent necessity for the motorcyclist, who must know his vehicle to a greater degree than does the average automobile operator.

Weight ratio. The decrease in the capability of the vehicle and the decreasing ability of the rider to control speed, direction, roll, pitch, and yaw as a result of an increase in load are significantly greater for a motorcycle than for a car. As the weight carried is increased, the capability of the motorcycle is rapidly decreased. A 300-pound machine carrying a 200-pound rider has near maximum capability. The addition of a second 200-pound passenger significantly decreases the capability of the vehicle. This 300-pound bike carrying 400 pounds of load may be comparable to a 3,000 pound car carrying 4,000 pounds, and yet the motorcycle must be controlled as to speed, direction, roll, pitch, and yaw.

The automobile driver perceiving a motorcycle in traffic carrying a heavy load should predict that the motorcycle may have reduced capability to accelerate, reduce speed, change direction, or maintain stability in a critical situation. The ability of the driver to perceive accurately the weight capability of the motorcycle is furthermore impaired because of the great range of capability among motorcycles.

Vehicle capability. Motorcycles have a greater range of capability from unit to unit than do automobiles. The average automobilist may not perceive identifying characteristics of various models and may be unaware of the capability of the various motorcycles he or she confronts. This should prompt the cyclist to leave extra time and space and to base decisions on leaving an escape route if the unexpected should occur.

Vision limitations. Motorcycle electrical signals may not be relied upon for the following reasons:

1. They are often mounted too narrow to indicate direction change.
2. They do not automatically shut off (except for some models), causing the possibility of many false signals.
3. They may malfunction.

Hand signals cannot always be continuously given since hands must often be relied upon to control the clutch, brake, throttle, or handlebars. Automobilists must therefore predict a rider's intentions on the basis of as much information as can be identified. Perception by automobile operators of a motorcycle's change in direction must not be highly dependent on the motorcyclist's signal.

The automobile driver must not always assume the motorcyclist benefits from the same lighting advantages as the automobile. With increased perceptual demands, the cyclist has often been faced with reduced vision caused by the lighting limitations of many motorcycles. The automobile driver must take this into account in decision making.

Protection of the Motorcycle Operator

In sharing the road with other highway users, the automobile driver must consider the nature of all the elements in the traffic picture and be aware of their effect on the driving task. In relation to the motorcyclist, the automobilist must not only consider those predictions which determine survival, but he or she must also consider that it is part of the driving task to protect the motorcycle operator.

Cycle Lane Position

Drivers should recognize that cyclists select various portions of their lanes for various situations. The selection of position is highly dependent on the specific situation, and general rules for position selection may not always apply to the decision of the rider. The rider must also recognize that many cyclists, like most drivers, are not knowledgeable and may make inappropriate decisions.

Cyclists commonly select the left side of the "wheel path" (the position of the lane which an automobile of average width would occupy) for the following reasons:

1. To discourage an overtaking car from passing in the lane ("Lane sharing" by left side passing is not illegal according to the California Vehicle Code but may be interpreted as "improper passing" and must be avoided.)
2. "To see and be seen" better at intersections
3. To avoid loose material and roughness at the edge of the road
4. To avoid doors opening from the cars in the curb lane
5. To avoid darting pedestrians
6. To avoid vehicles that are lane changing from the curb lane
7. To avoid vehicles leaving alleys and driveways
8. On highways, to "see and be seen" on the crown of the road horizon
9. To be perceived in both the center rearview and left sideview mirrors of vehicles ahead

The cyclist should avoid the middle of the lane for the following reasons:

1. To avoid oil slicks and vehicle droppings (especially at intersections, tollbooths, and other areas where traffic slows, thus increasing the amount of oil drip, and when precipitation or other wetness on the pavement may magnify the effect of the slick)
2. To avoid road surface obstacles which pass under cars ahead
3. To avoid being "pinned in" while waiting at a traffic control device

Cyclists select the right side of the "wheel path" under the following circumstances:

1. When "setting up" for a right turn (if poor traction does not necessitate utilizing maximum application of the "outside, inside, outside" curve negotiation technique), the intention to turn can be emphasized by selecting the right "wheel path" from the approach. If traction is minimal, intention emphasis must be sacrificed in order to maintain stability, and the rider should select the left "wheel path" to provide as wide a corner as possible. Cyclists must avoid the blind spot areas of vehicles in the lane to the left and avoid lane sharing (many motorcycles have been pinned between right turning cars).
2. When meeting face-on vehicles that create a strong wind draft
3. When being rapidly passed by vehicles, which may cause suction
4. When avoiding road obstacles to the left
5. When approaching left-turning vehicles
6. When riding in a staggered formation with other motorcycles

Cyclists may be seen "splitting lanes" (passing between lanes of cars). Although lane sharing on the left is not illegal, it may be considered to be an "unsafe operation" and a law violation. However, cyclists may sometimes "split lanes" to avoid being pinned in between cars, thus acquiring an escape route. Many place their bikes beside cars to prevent being struck from behind.

Cyclists may select either left or right "wheel paths" to ride in a path "wiped" by the leading vehicle's tire tread, thus selecting a more tractable path and being better able to predict from the movement of the tires of the leading vehicle irregularities on the road surface.

Drivers observing cyclists making erratic or unwise lane position selections should anticipate that the cyclists may experience unpredictable risks. Drivers should allow a motorcycle a whole lane and should not attempt to drive or pass within the same lane.

Potential Points of Conflict

Auto drivers must understand the task of both the automobilist and the cyclist in negotiating car-cycle conflict points. The auto driver and the cycle rider must attempt either to avoid the conflict or to minimize the risks involved. Drivers must be able to identify correct and incorrect driver and rider behavior and predict the outcomes of each. The following are descriptions of some of the possible conflict points and the steps which should be taken by cyclist and driver to avoid the conflicts:

1. Car turning left across path of cycle
   a. Cyclist
      1) Ride with headlights on in any traffic situation where perception front and rear is critical.
      2) Ride in right "wheel path."
      3) "Set up" as appropriate to situation.
      4) Imagine you are invisible and expect the car to pull out (even though it should yield right-of-way; often cars fail to yield right-of-way to motorcycles).
   b. Driver
      1) Search all oncoming lanes for a motorcycle, especially one which may be hidden in the right blind spot area of a car in the fast travel lane.
      2) Expect to identify a motorcycle as you search the approach to an intersection (drivers often do not perceive the motorcycle).
      3) If you identify a motorcycle, predict it may be proceeding faster than it appears (size is deceptive; the smaller and less familiar a vehicle, the more difficult speed judgment becomes).
      4) Yield right-of-way to a motorcycle proceeding straight through an intersection. Do not force the motorcycle to stop rapidly in an intersection by pulling out in a "benefit-of-the-doubt" situation.
2. Car approaching an intersection (e.g., driveway, alley) perpendicular to the motorcyclist
   a. Cyclist
      1) Headlight on.
      2) Imagine invisibility–select an escape route.
      3) Lane position
         a) If car is from the right, ride in the left "wheel path" of lane.
         b) If car is from the left, ride in the right "wheel path" of lane.
         c) Ride in left lane to avoid curb lane conflicts and to improve visibility and searching ability.
   b. Driver
      1) Consider the vulnerability of the rider before you force him or her to yield to you unexpectedly. It is part of the driving task to protect the other highway user.
      2) Allow extra time to proceed since the driver's perception of the motorcycle speed may be inaccurate.
3. Auto tailgating cyclist
   a. Cyclist
      1) Be ready for auto to pass within the same lane.
      2) Riding in left "wheel path" may prevent improper passing; however, many sociopathic drivers may still attempt to pass very close and cut in sharply as if to run the motorcyclist off the road or "teach" the cyclist a lesson. Riding in the left-hand path may also leave an escape route to the right in case a car comes too close.
      3) Gentle slowing (without brakes to avoid brake lights) may encourage passing, but since many drivers may not allow a full lane, predict a cutoff.
      4) Lightly pumping brakes to flash brake lights may cause some drivers to drop back, but many may become more inconsiderate.
      5) Hand-brake signal (exaggerate signals) may cause courteous drivers to drop back, but courteous drivers are less likely to be tailgaters.
      6) If possible, get away from tailgaters by lane changing, increasing speed if ap-

propriate, or leaving roadway and allowing the tailgater to go far away.

- b. Driver
  - 1) Perceive that the motorcycle needs a greater circle of safety than does an automobile and drop back to allow an abundant space cushion between you and the cyclist.
  - 2) If the bike becomes unstable, the cyclist may fall; and the automobile may run over the cyclist lying in the street.
  - 3) If the driver decides to pass, he or she must allow a full lane for the motorcycle.
    Never follow closely behind a cyclist who is about to turn.

4. Cycle tailgating automobile
   - a. Cyclist
     - 1) Tailgating is more dangerous for a cyclist than a driver because:
       - a) There may be insufficient stopping distance to maintain stability.
       - b) Even if the capability of the bike is such that it can stop in the time and distance ahead, the following car may not and the bike will be pinned in.
       - c) The cycle may be hidden behind the vehicle it is following.
       - d) The cyclist cannot see the traffic situation ahead.
       - e) The cyclist cannot see the road surface far enough ahead to identify hazards appearing from under the car ahead (by riding in the tire path of the car ahead, the car may give a warning as it passes over the obstacle).
   - b. Driver
     - 1) Predict cyclist may attempt to pass.
     - 2) If the cyclist does not pass, keep monitoring his or her position until you can separate.
5. Auto passing cycle
   - a. Cyclist
     - 1) Stay in left "wheel path" unless forced over by car or wind draft.
     - 2) Predict premature lane return.
     - 3) Adjust space cushion when pass is completed.
   - b. Driver
     - 1) Use same procedures as for passing another auto; allow full lane.
6. Cycle passing auto
   - a. Cyclist
     - 1) Use proper lane change procedure (out and back).
     - 2) Accelerate in such a way as to avoid startling the driver.
     - 3) Return to left "wheel path."
   - b. Driver
     - 1) Do not increase speed (many cycles may not have reserve power for additional acceleration).
     - 2) Expect some noise as the cycle comes through the blind-spot area.
7. Cycle passing on right (without a suitable lane)
   - a. Cyclist
     - 1) Don't do it.
   - b. Driver
     - 1) Predict it may happen, especially at right turns.
8. Blind spots which may hide the cycle (right and left blind-spot areas; blind spots of the auto design; behind or beside a larger vehicle; behind in a parallel parking space)
   - a. Cyclist
     - 1) Avoid or move through quickly or "on guard."
   - b. Driver
     - 1) Acknowledge blind spots when searching for cyclist.
     - 2) Expect cyclist to be hidden.
9. Cyclist riding between lanes in heavy traffic
   - a. Driver
     - 1) Stay centered in lane.
     - 2) If traffic is at a standstill, do not open doors without checking mirror and blind spot.
     - 3) On freeway consider if traffic is stopped.
   - b. Cyclist
     - 1) Highly dangerous activity which must be avoided.
10. Cycle stopped at a red light—car approaching from behind
    - a. Driver
      - 1) Stop behind cyclist; do not attempt to share lane.
      - 2) At night in an urban situation with multicolored lights, a motorcycle may be difficult to see; predict and expect one when searching.

b. Cyclist
  1) If a car is in front, leave an escape route to side.
  2) Pump brake lightly when a vehicle approaches from behind.
  3) Wait in left "wheel path."
  4) Bike to left of left tire track encourages lane sharing and appears to be setting up for a left turn.

Cycle-Car Communication

Both the motorcyclist and the automobile driver must attempt to perceive each other's intentions as early and as accurately as possible. When searching, they must have expectations of each other's presence. The motorist must search blind-spot areas of all kinds, expecting the possibility of the motorcycle being hidden. The motorcyclist must be on the defensive, however, and must always expect that he or she will not be perceived.

Drivers must predict that a motorcycle's signal is more likely to be false than an automobile's signal, since most motorcycle signals do not automatically return to the off position.

There are times when it is mandatory that the rider firmly grip the handlebars with both hands, and times when he or she must squeeze the clutch lever with the left hand. Therefore, signaling must not be done continuously.

Electrical signal lights on motorcycles may not be wide enough apart to make intentions clear to the driver, so the driver may have to make predictions on the basis of the bike's movement and position.

The motorcyclist should keep his or her headlight on day and night when operating where other highway users may be expected, thus encouraging early identification of himself or herself. The cyclist must still expect not to be seen.

In some situations when a driver may be able to communicate with a wave of the hand, the rider may be limited to a nod of the head, which may easily be misinterpreted.

Although there is a great effort to eradicate engine noise, some sound may be helpful to the rider in being identified. Most bike horns meet minimum requirements but may be ineffective compared to auto horns.

The cyclist even more than a driver must emphasize intentions by lane position in traffic and by "setup" movement in approaching critical situations. The driver must perceive the cyclist's movements and make predictions about the cyclist's intentions as early as possible.

The cyclist can improve visibility by the use of reflective material on all sides of the machine, helmet, and clothing. Cyclists should wear light colored clothing at night and bright colors during the day.

The rider must predict that some motorists exhibit sociopathic behavior towards the two-wheeled vehicle operator. Certain drivers will even communicate overt aggression towards cyclists and may attempt to run cycles off the road. The rider must therefore place himself or herself in traffic in the best position so as to leave an escape route, and must also take the earliest opportunity to avoid any person suspected of being what might be described as "cyclecidal."

Although riders should select routes according to their machine capabilities, motorists should be patient when encountering cycles that are not able to maintain a reasonable speed in traffic or on an upgrade.

The driver must communicate with the rider as road and traffic conditions are identified ahead. The driver must allow the motorcyclist to set up for a hazard, and the driver must also be prepared for the cycle to become unstable due to improper response to a hazard.

The very word "motorcycle" is to some a form of prejudice which leads to irrational behavior, as does all other forms of prejudice. The driver must perceive that the motorcycle and its rider are not a threat to him or her personally. This may require overcoming negative images of "freedom" or "irresponsibility" or "delinquency," which may be communicated to some minds because of leather jackets, helmets, constant lane adjustment, or engine sound of the motorcycle.

Road and Traffic Conditions

Various road and traffic conditions may be more critical to the operation of a two-wheeled vehicle than to the operation of an automobile. The motorcyclist must "set up" when approaching an intersection or a critical situation so as to minimize the hazard.

1. *Decision making.* Driving or riding are decision-making tasks. Some decisions are *tentative* decisions, which must be finalized after considering further information. Other decisions are *final* decisions which are made immediately before execution.

- a. *Rider perception.* Tentative decisions must precede final decisions whenever a rider:
    - 1) Uses the lane-change procedure
    - 2) Approaches an intersection (tentative decision to enter—"setting up")
    - 3) Predicts a critical situation (tentative decision to respond from on-guard position)
    - 4) Deals with multiple risks and must separate or compromise
- b. *Driver perception.* Same as for rider perception.

2. *Expectancy*
    - a. *Rider perception.* To facilitate perceptual responses, drivers and riders must expect to identify various situations or conditions. Properly placed and timed eye movements and accelerated perception time of received input result from the anticipation of a reasonable expectancy. Expectancy is a function of the operator's ability to relate knowledge to situations.
    - b. *Driver perception.* Same as for rider perception.
3. *Perceptual process*
    - a. *Rider perception.* The tasks of perceptual skill involve the processes of (1) expect, (2) search, (3) identify, (4) predict, and (5) decide. The decisions resulting from perception must be executed skillfully and at the optimum moment.
    - c. *Driver perception.* Same as for rider perception.
4. *Setup*
    - a. *Rider perception.* The concept of "setup" for a two-wheeled vehicle not only includes controlling the position and the speed in approaching a situation but also controlling the elements (roll, pitch, and yaw). Two-wheeled vehicle operators "set up" for intersections and critical situations.
    - b. *Driver perception.* There are two elements of "setup"—speed and direction (position). The driver must identify the cause for the rider's "setup" in order to predict how the rider may "setup" or to predict the result of not "setting up." The driver must adjust speed and position to accommodate the cyclist.
5. *On-guard position*
    - a. *Rider perception.* Each time the operator of a two-wheeled vehicle "sets up" for a critical situation, both the operator and the passenger, if any, must get into the "on-guard" position, which involves the following:
        - 1) Placing weight on footpegs
        - 2) Covering brakes if braking is predicted
        - 3) Placing footpegs in front of feet and weight back if speed reduction is predicted (or weight forward if acceleration is predicted)
        - 4) Covering clutch and shifter, if gear change is predicted
        - 5) Exerting dynamic tension against handlebars (passenger must grip operator with legs and waist hug)
    - b. *Driver perception.* Drivers must perceive that a rider getting into an "on-guard" position may be approaching a critical situation. The driver's "on-guard" position is hands at 10 and 2 o'clock on the steering wheel and foot covering the brake.
6. *Early prediction*
    - a. *Rider perception.* The rider must make early predictions regarding road and traffic conditions so that if the unexpected does occur, he or she will be "set up" as well as in an "on-guard" position and will be able to deal with those road and traffic conditions readily identifiable.
    - b. *Driver perception.* Same as for rider perception.
7. *Ball in road*
    - a. *Rider perception.* An auto driver identifying a ball rolling into the road is presented the hazard of a child following the ball into the road. However, the ball alone is a serious hazard to the two-wheeled vehicle operator, since even the ball may upset the vehicle. "Dynamic tension" against the bars and "on-guard" position may prevent upset if the ball gets under the path of either wheel. Speed reduction may have little effect on maintaining stability if the ball does get "under the wheels."
    - b. *Driver perception.* The driver must not only perceive the ball as being a hazard because of a child that may follow but must also predict that the motorcycle may become out of control.
8. *Metal grating*
    - a. *Rider perception.* Hazardous vibrations leading to steering difficulties or over-

steering may be avoided when crossing a metal grating by making gentle swerves back and forth across the rider's lane at low speed (utilizing the applicable elements of the "on-guard" position).

b. *Driver perception.* The driver must allow a greater circle of safety to a motorcycle when auto and cycle are passing over a metal grating, particularly on a narrow bridge.

9. *Railroad tracks*

a. *Rider perception.* A two-wheel vehicle must cross a railroad track, streetcar tracks, steel bridge expansion joints, manhole covers, or any similar obstruction (1) at right angles (to control yaw and direction), with the vehicle perpendicular to the road surface (roll); and (2) at such a speed and with rider in such a position as to control the pitch of the vehicle.

b. *Driver perception.* The driver must identify the track early, predict the cycle's behavior, adjust the auto to the situation, and choose an escape route in case the cycle "goes down."

10. *Animate objects*

a. *Rider perception.* Dogs or other animals often jump at two-wheeled vehicles and may cause a loss of control due to collision with dog, dog getting caught in wheels, or the rider being startled into an improper response. Various techniques for dog avoidance are as follows:

1) Throttle off (head slightly toward dog) and then open throttle and veer away.
2) Speed up to pass by dog.
3) Slow down and use the horn or rev the motor.

b. *Driver perception.* Drivers must expect that dogs run into traffic to chase motorcycles (which are expecially provocative to many dogs). Drivers must allow the motorcycle enough extra room for the cyclist to employ an avoidance technique and for avoiding an accident in case the dog collides with the motorcycle.

11. *Group riding*

a. *Rider perception.* Riding abreast may not be illegal but results in unnecessary risk. Riders should stagger in right and left "wheel paths" at a two-second following distance, with the lead bike selecting the left "wheel path." Cyclists should not ride in a formation with inexperienced riders, especially if traction is reduced. When passing in formation, the lead passer should enter the right "wheel path," allowing the following motorcycle to pass into the left "wheel path" and to assume the lead. Motorcycles riding staggered on a sharp curve may find that a cycle which falls down ahead of them will slide from the inside "wheel path" across the "wheel path" on the outside of the curve.

b. *Driver perception.* The driver must avoid cycles riding abreast. If one cycle passes the auto, the driver should predict that the others may follow. Drivers must avoid being startled by passing cycles.

12. *Riding at night*

a. *Rider perception.* Because of the headlight configuration of a two-wheeled vehicle, not only is the road surface difficult to "read" but road signs may often be in shadows, requiring the use of the high beam and momentarily aiming the cycle toward the sign.

b. *Driver perception.* The effect of road pitch may raise the motorcycle headlight momentarily above a comfortable level for oncoming highway users. The auto driver must appreciate the limitations of the cyclist's conveyance.

13. *Identifying problem motorists*

a. *Rider perception.* The rider must predict that various motorists and highway users exhibit sociopathic behavior toward the two-wheeled vehicle operator and may cut in front of or attempt to run the two-wheeled vehicle off the road.

b. *Driver perception.* Drivers must clarify their value indicators (attitudes, beliefs, feelings) about motorcycles and must recognize and control any antisocial behavior they may experience when encountering motorcycles.

14. *Inclement weather*

a. *Rider perception.* Rain, fog, sleet, snow, dew, frost, or other climatic situations may result in reduced stability due to the reduced friction between the tires and the road surface and to reduced visibility. Cyclists must avoid riding, if possible, in such weather and must reduce the speed of actions to control all movement characteristics (except yaw; responses to loss of yaw control must be quick and accurate). Cyclists must remember that "seeing and being seen" is more difficult in inclement weather.

b. *Driver perception.* Because motorcycles are extremely hard to identify in bad weather, the driver must have his eyes "peeled." The driver must also predict poor stability of the motorcycle and must remember the reduced capabilities of the automobile in foul weather in interacting with the motorcycle.

15. *Visibility of a two-wheeled vehicle in certain situations*

a. *Rider perception.* A two-wheeled vehicle may be less easily seen than an auto; therefore, techniques of being seen and making intentions clear must be understood to be more critical to the operator of a two-wheeled vehicle. Poor visibility can be predicted when a motorcycle is in the following positions/conditions:

1) Behind a vehicle
2) In a blind-spot area
3) In a driveway blind spot
4) At a complex intersection
5) With sun at back
6) At night
7) In inclement weather
8) When passing
9) When lane changing

b. *Driver perception.* The driver must be aware of the situations which make identification of a motorcycle difficult and must form the habit of expecting a motorcycle to appear.

16. *Visibility improvement*

a. *Rider perception.* The operator of a two-wheeled vehicle used on public streets should (1) keep driving lights on day or night to improve identification; (2) wear light-colored clothing and a helmet with reflective material; and (3) utilize reflective material on the sides of the cycle (standard on most two-wheeled vehicles since about 1968). A "little" muffler noise can help too. Bike placement is important to driver perception.

b. *Driver perception.* Drivers in certain situations may also benefit from "lights on for safety." Drivers must perceive that a bike rider has safety in mind when he or she is riding with the lights on.

17. *Puddle*

a. *Rider perception.* A puddle, which may cause hydroplaning at high speeds, may be dangerous to a two-wheeled vehicle even at low speeds because a hole or other hazard may be hidden beneath the surface of the water. Furthermore, the water remaining on the tire after leaving the puddle may produce loss of control.

b. *Driver perception.* The driver must realize that a puddle may be critical to the motorcycle, and the driver must therefore "accommodate" the motorcycle.

18. *Puddle setup*

a. *Rider perception.* A two-wheeled vehicle operator must utilize high-aim steering to identify puddles early to allow for a setup. The setup involves (1) controlling speed, position (avoiding the puddle if possible), and roll; and (2) getting into the "on-guard" position just before crossing to avoid unexpected changes of pitch and yaw. The rider must be careful after leaving the puddle, as the tire will be wet for a while.

b. *Driver perception.* Drivers should be able to recognize the rider's setup actions: The rider will "raise on pegs" (knees bent), brace against handlebars, set speed and position, and may become unstable (if the rider accelerates hard leaving the puddle).

19. *Road surfaces*

a. *Rider perception.* Road surfaces which might cause only an insignificant loss of friction for an auto (sand, gravel, wet pavement, leaves, grass, litter, ice, snow, or polished or oily surfaces) may cause a two-wheeled vehicle to fall. A highly irregular surface also provides a loss of control due to friction loss.

b. *Driver perception.* The driver must realize that any condition which reduces friction between the tires and the road surface may be critical to motorcycle stability; a motorcycle has only two contact points, which must perform stability, speed, and direction functions. Automobilists must be aware that only a highly skilled cyclist is capable of controlling an unexpected skid, yaw (swerve), or pitch; many cyclists in these conditions will upset.

20. *Hazards on road surface*

a. *Rider perception.* Hazards existing on top of the road surface present special difficulties to the two-wheeled vehicle. Some of these hazards are the following:

1) Concrete channels used to drain water at intersections (cyclist must set up and use the "on-guard" position)
2) Loose foreign objects–bottles, cans, litter, lumber, brick, wire, and objects which suddenly come off other vehicles (hubcaps, wheels, mufflers, and packages) (The cyclist must avoid the objects or get "on guard.")
3) Wire stretched across roadway (on cow trails)
4) Door opening from a parked car–a hazard significantly more critical to the two-wheeled vehicle (riding in left track of lane to avoid parked cars is the best preventative)
5) Road-surface painted markings, which produce very little friction, especially when wet
6) Sawed expansion joints, which can cause a speed wobble (violent oscillation of the front wheel)
7) Birds on the road, which may fly across the path of a two-wheeled vehicle
8) Street excavations, which may be poorly marked

b. *Driver perception.* Drivers must identify road surface conditions that can cause a motorcyclist to modify his or her behavior; drivers must coordinate their movements to protect the motorcyclist.

21. *Carrying a passenger–operator readiness*
   a. The cycle operator must have sufficient physical skills to compensate for any reduction in vehicle capability which may result from carrying the weight of a passenger.
   b. The operator's procedural and perceptual skills must be optimal to eliminate the need for crash avoidance techniques, which are more difficult when ladened with a passenger.
   c. The operator must have superior behavioral skills in order to avoid unnecessary risks, and the operator should realize that the temptation to "show off" physical skills is magnified when carrying a passenger. The operator must also insist on proper passenger conduct.
   d. The operator must provide protective equipment (helmet especially) to the passenger if he or she does not have any available.
   e. The operator must be free from chemical impairment (drugs and alcohol).
   f. The operator must plan and prepare for the trip.
22. *Carrying a passenger–passenger readiness*
   a. The greater the passenger's knowledge of the "riding task," the more competent will be the passenger and the easier will be the task of the cycle operator.
   b. The passenger must be willing to wear protective equipment and to follow the instructions of the operator.
   c. The would-be passenger must not ride with an operator who may be incompetent.
23. *Carrying a passenger–vehicle readiness*
   a. The following must be provided on the vehicle when carrying a passenger:
      1) Passenger seat or dual seating
      2) Passenger footpegs
      3) Suspension system adequate for combined weight of rider and passenger under the predictable road conditions
      4) Mirrors mounted to give a view around the passenger
      5) Capabilities sufficient for the speed and traffic conditions of the selected route
   b. If liability or medical insurance is not provided to cover damages to a passenger, the operator must assume the risks.
24. *On highway operator tasks*
   a. The operator should explain the riding tasks to the passenger and ensure that the passenger takes advantage of the vehicle equipment.
   b. The operator must perform all movement and stability tasks while the passenger merely moves with the motorcycle.
   c. The operator must perform all balancing tasks and must support the vehicle when at rest.
   d. The operator must accommodate for the reduced vehicle capability due to the increased weight load.
   e. The operator must allow the passenger to grasp around his or her waist rather than hold onto a handle below or behind the passenger (any social stigma of men "hugging" must be overcome in consideration of the safety of the riders).
   f. The operator should recognize that fatigue may occur earlier when riding

double and must provide more frequent breaks.

g. The operator must perceive road conditions which may be hazardous with the increased load and must "set up" to negotiate them.

25. *On highway passenger tasks*

a. *Physical skills.* The passenger must be seated centered on the saddle with knees inward "hugging" the operator, have arms around the operator's waist and hands grasped, and have weight forward against the back of the operator. The passenger must not attempt to steer or balance but must stay immediately behind the rider. The passenger should keep feet on the footpegs when stopped. The passenger may use one hand to check occasionally the security of any items carried on the "carrying rack."

b. *Procedural skills.* The passenger must not mount until the operator is mounted and the engine is running (except for electric start models). If the engine stalls at a traffic control, the passenger should dismount to allow the operator to restart. The passenger should fold down footpegs when mounting. When the rider gets into an "on-guard" position, the passenger should do the following:

1) Raise on footpegs.
2) Squeeze arms against sides of rider to brace away from, as well as hold onto, the rider.
3) Keep eyes open, predict outcomes, and, if necessary, decide on actions to minimize injury if a crash is imminent.

c. *Perceptual skills.* The passenger may assist in communicating to other highway users, especially when the riding task requires both hands on the handlebars and when intention must be emphasized. The passenger should identify road and traffic conditions and predict the operator's behavior to better cooperate with the operator's actions.

d. *Behavioral skills.* The passenger should avoid disturbing the operator; however, if the operator appears foolhardy, the passenger should have him or her stop, and the passenger should dismount.

26. *On highway driver perception tasks.*

Automobile drivers identifying a cyclist carrying a passenger may predict the following:

a. As a result of the weight/capability ratio, the motorcycle may have reduced capability (acceleration, deceleration, stability).

b. The operator has increased motivation to show off.

c. The passenger is quite vulnerable and less secure than the operator; the operator is in the optimal position above the cycle's center of gravity and is holding onto the handlebars.

d. Any foolish conduct by the operator will indicate that he or she may not be experienced enough to carry passengers safely through all road and traffic conditions.

e. The operator may be excessively fatigued if the vehicle has been ridden for more than an hour.

The driver should then decide to place the automobile in traffic in such a way as to compensate for the limitations of the motorcycle operator.

MOTORCYCLE OPERATION

Concept	Student performance indicator		
	Classroom	Simulator	Vehicle
Characteristics of the motorcycle			
The riding task	Given a series of skills involved in the operation of a motorcycle, the student must identify the categories to which each skill applies (physical, procedural, perceptual, or behavioral).	*Motorcycle simulator* Students must identify skills that can be readily learned in the simulator phase of the course. *Automobile simulator* In simulated episodes which include motorcycles, students must respond appropriately, taking into consideration the task of the cyclist.	*Motorcycle operator* The student's execution of the riding task reveals competency in physical, procedural, perceptual, and behavioral skill areas. *Automobile driver* The driver must make decisions, taking into account the task of the motorcycle interacting with the automobile.
Operational characteristics	Students must be able to move a model on a model board to illustrate the vehicle's ability to roll, pitch, and yaw, as well as undergo direction and speed. Alternatively, students can match a diagram of a motorcycle exhibiting a movement characteristic with the term which describes the characteristic.	*Motorcycle simulator* The student must demonstrate body movements which control the five motorcycle movement and stability characteristics. *Automobile simulator* In simulated episodes which include motorcycles, the student will respond in a manner which reveals an understanding of how the various movement characteristics of the motorcycle may affect the riding task.	*Motorcycle operator* The cyclist must demonstrate control of roll, pitch, and yaw at various speeds and positions on the road surface and must maintain stability through confrontations with various road and traffic conditions. *Automobile driver* The driver must perceive the significance of a cycle's roll, pitch, and yaw in the behavior of a cycle in traffic.
Motorcycle controls	Using the format of a matching question, students must match vehicle performance to operator movements of controls.	*Motorcycle simulator* Students must achieve a passing score on a simulator evaluation of a filmed program which includes the use of cycle controls. Given a command involving manipulation of controls, students must complete the action within two seconds of the filmed demonstration. *Automobile simulator* Given a description of a motorcycle control, students must identify on	*Motorcycle and automobile operator* In traffic involving motorcycles, students must avoid car-cycle conflict points. During commentary driving, students must identify problems confronting a cyclist, predict the behavior of riders moving through traffic, and describe the cyclist's use of controls.

Motorcycle controls (continued)		their simulator the control which performs the same function.	
Perception of motorcycle by other highway users	In a true-or-false format, students must affirm that the motorcycle is poorly perceived by other highway users. In a multiple-choice format, students must identify four out of five suggested explanations for the causes of the motorcycle being poorly perceived in traffic.	*Motorcycle simulator* In filmed sequences, riders must always have headlights on and must take actions (within two seconds of the demonstration rider) which improve communications. *Automobile simulator* In filmed sequences which involve identification of a motorcycle, students must respond within one second of the response of the filmed demonstration driver (for example, covering brake).	*Automobile driver* Students driving in traffic will make identifications, predictions, and decisions related to motorcycles within two seconds of the instructor's judgment of the time for a reasonable reaction (or will execute decisions within one second of the instructor's judgment of the time for a reasonable reaction). *Motorcycle operator* Student riders will keep headlights on, make intentions clear, and avoid cycle-car conflict points.
Popularity of the motorcycle	Students must affirm in a true-or-false format that there is an increased popularity in motorcycling and that this increase has sharpened the need for all highway users to understand their relationship to the motorcycle in traffic.	*Motorcycle or automobile simulator* In filmed sequences which involve a motorcycle, students will affirm that there has been an increase in the number of motorcycles on the nation's roads.	*Motorcycle and automobile operators* Students will identify motorcycles in traffic and will always respond defensively in a potential conflict with a motorcycle.
The riding task			
The riding task compared to the driving task	Students must list five subtasks of the "riding task" and then must compare the subtasks to the "driving task." Given a list of concepts related to the "riding task" and the "driving task," students must identify eight concepts (out of a choice of ten) which are different between automobiles and motorcycles.	*Motorcycle or automobile simulator* During selected sequences occurring in automobile simulator programs, students must describe motorcycle rider's tasks in similar situations. Students must identify: 1. Identical tasks 2. Similar tasks which are more critical to the cyclist 3. Tasks unique to the cyclist *Motorcycle or automobile simulator* In a filmed sequence which relates to an application of a "riding task" concept, students must suggest three differences between the "riding task" and the "driving task."	*Motorcycle operator* Students will perform both "driver" and "rider" tasks effectively as the result of a cognitive understanding of both tasks. The student performance of rider and driver tasks will be void of conflicts in traffic situations that involve both motorcycles and cars. *Automobile driver* Students driving in traffic situations involving motorcycles will make decisions which reflect consideration of the differences between the rider's task and the driver's task. Students will never place their cars in traffic in such a way as to enter a

MOTORCYCLE OPERATION (continued)

Concept	Student performance indicator		
	Classroom	Simulator	Vehicle
The riding task compared to the driving task (continued)			car-cycle conflict point without "setting up" for a critical situation. Students will always avoid car-cycle conflict points when feasible.
Stability characteristics	In a true-or-false format, students must identify correctly (as true) four concepts (out of a choice of five) that are related to balance, dynamic and static stability, gravity, centrifugal force, inertia, traction, friction, force of impact, wind draft, gyroscopic action, and center of gravity.		*Motorcycle and automobile operators* Students must perceive the stability characteristics of the motorcycle as an important consideration in decision making regarding the relationship between the motorcyclist and other highway users.
Movement characteristics	Students must identify the five movement characteristics (from a list of concepts) related to natural laws and the motorcycle.		*Motorcycle and automobile operators* Students must make decisions in traffic containing motorcycles which take account of the movement characteristics of the motorcycle and their effect on its control.
Motorcycle controls	Given a control task, students must name and give the location for the operator actions that achieve the task. Students must label a simple diagram of a motorcycle identifying throttle, front and rear braking, clutch, gearshift lever, kickstand lever, footpegs, and handlebars.		*Motorcycle and automobile operators* Students interacting with motorcycles in traffic must make decisions with consideration for the riders' tasks of manipulating their motorcycles.
Perceptual skills of the cyclist	Given a series of concepts involving road and traffic conditions, students must identify those traffic elements which are unique to the motorcycle and those which are more critical to the motorcycle than to the automobile.		*Motorcycle and automobile operators* Students must place their vehicles in traffic in such a way as to allow for the motorcycle's ability to cope with road and traffic conditions which are unique or critical to the motorcycle in traffic.

Procedural skills of the cyclist	In a multiple-choice format, students must select concepts which illustrate the nature of procedures which are unique to motorcycle operation and which may affect the "driving task."		*Motorcycle and automobile operators* Students in traffic with motorcycles must consider the unique procedural skills involved in motorcycle operation when deciding how to interact with the motorcycle at conflict points, when predicting the cyclist's intentions, and when communicating with the cyclist.
Vehicle Code sections concerning the motorcycle	Students must attain a minimum of 70 percent correct responses on objective test items related to the Vehicle Code sections that pertain to the motorcycle.		*Motorcycle and automobile operators* Students making decisions involving a motorcycle on a roadway must not contradict a Vehicle Code section pertaining to the motorcycle.
"Packaging" of cyclist	Students who have considered the "packaging concept" for automobiles must identify at least two out of three principles of packaging that do not apply to the motorcycle.	*Motorcycle or automobile simulator* Students viewing a motorcycle in a selected filmed sequence must suggest a predictable collision situation for the cycle and suggest at least one highly likely injury the cyclist might expect as a result of not "being packaged" during the impact.	*Motorcycle and automobile operators* Students driving in traffic situations involving motorcycles must never tailgate a cycle intentionally, pull out in front of a motorcycle, or exhibit any behavior that indicates a lack of understanding of the rider's vulnerability.
Selection of "wheel path"	Students must identify eight reasons (out of a choice of ten) for selecting the right-hand "wheel path." Given a diagram of a motorcycle-car road-sharing situation, students must identify proper motorcycle lane position and must predict consequences of improper selection.	*Motorcycle or automobile simulator* Students viewing a demonstration rider must identify any clues to situations which may influence the rider to take the right-hand wheel path or, given the identification, must predict the rider's position change.	*Motorcycle and automobile operators* Students identifying a condition described as a "reason for selection of the right-hand wheel path" must identify two out of three times that a motorcycle should be in the right-hand wheel path. Students driving in a motorcycle-car road-sharing situation must select proper motorcycle lane position, identify improper lane positions of motorcycles in the traffic mix, and decide to place the vehicle in traffic in such a way as to accommodate for predicted motorcycle behavior.
The driving task			
Avoidance of position between "wheel paths"	Given diagrams of various car-cycle road-sharing situations, students must identify as incorrect any exam-	*Motorcycle or automobile simulator* Students driving through filmed sequences which include vehicles with blind spots to the rear, such as in a	*Motorcycle and automobile operators* Students in traffic-truck situations (which include a cycle riding in the center lane position or a "blocking

MOTORCYCLE OPERATION (continued)

Concept	Student performance indicator		
	Classroom	Simulator	Vehicle
Avoidance of position between "wheel paths" (continued)	ples of cycles placed in the center of a lane.	van truck, or sequences which include good examples of an oil slick in the center of the lane must identify the risks involved in lane center position (teacher uses "stop action" technique).	vehicle" ahead) must leave an extra space cushion.
Selection of "wheel path"	Given a list of criteria for selecting the right-hand wheel path, students must draw diagrams or move a model to illustrate predictable results of riding in the left "wheel path" in situations which involve the selection criteria.	*Motorcycle or automobile simulator* Students "driving" automobile simulators in filmed sequences which include conditions referred to as "criteria for selection of the right-hand wheel path" must describe the predictable results of a motorcyclist's failure to select the right-hand "wheel path" and must express a driver decision which provides for the cyclist's error.	*Motorcycle and automobile operators* Students in traffic situations involving a motorcyclist that is making correct lane position movements will drive in a manner which demonstrates proper perception of the cyclist's intentions. Students perceiving an improper motorcycle lane position will allow an extra space cushion and assume an "on-guard" position to allow for a cycle mishap.
"Splitting lanes" and escape routes	Given a diagram of a cycle "splitting lanes," students must identify through a multiple-choice format that this normally risky procedure, which should be avoided, may be utilized as an escape route in an emergency or as a protective position while waiting at a traffic signal (cycle must not be placed in a blind spot).	*Motorcycle or automobile simulator* In filmed sequences depicting lane position for automobiles, students must respond to true-or-false questions regarding a motorcycle's position in lanes, including the "splitting of lanes."	*Motorcycle and automobile operators* Students will identify lane "splitters" and will avoid placement in traffic which encourages lane sharing. Students observing lane "splitters" waiting for a signal will predict that the cyclist may be providing a protective position.
Car-cycle conflicts	Given a diagram of a car-cycle conflict, students must list perceptions of both the rider and driver in relation to: 1. Communicating or improving visibility 2. Avoiding the conflict altogether, when feasible 3. "Setup" or use of "on-guard" position to negotiate, if necessary		*Motorcycle and automobile operators* Driver and rider must attempt to reduce the number of or minimize the risks involved in car-cycle conflict points. (Each highway user must predict the consequences of an improper decision and must provide a "setup" which allows for an escape.)

Car-cycle conflicts (continued)	4. Severity of risks involved 5. Escape technique, if necessary		
Car turning left across path of cycle	Given a diagram of a car turning left across the path of a motorcycle, students will list predictable outcomes of the situation. 1. List the things the driver should have done to avoid the problems. 2. List the things the rider should have done to minimize the risks.		*Motorcycle and automobile operators* Students turning left in a traffic situation in which a motorcycle may exist must execute his intentions according to the principle of expectancy, searching, identifying, predicting, and deciding.
Cycle-car communication	In a true-false format, students must correctly identify (as true) 10 principles (in a list of 14) of communication between rider and driver.		*Motorcycle and automobile operators* Drivers and riders must attempt to perceive each other's intentions as early and as accurately as possible. The rider must emphasize intentions even more than the driver since the rider is more easily misperceived. The driver must communicate with the rider as changing road and traffic conditions are identified ahead. Drivers and riders must apply the principles of communication in sharing the road.
Electrical signals	In a true-false format, students must identify that a motorcycle's signal may be more likely to be false than an automobile's signal.		*Motorcycle and automobile operators* Students must make early predictions of false signals given by motorcycles in traffic.
Communication by lane position	Students must draw symbols representing motorcycles in three of the following four lane positions in simple top-view diagrams showing "setup" to emphasize intentions. 1. Right turn 2. Left turn 3. Lane change 4. Continuing straight with turn lanes to side		*Motorcycle and automobile operators* Students will predict a motorcycle's intentions as a result of position within lane, as well as by the cyclist's signals.
Decision making	Students must offer definitions of tentative and final decisions and must state at least two examples	*Motorcycle or automobile simulator* Students instructed during filmed simulator sequences to make a turn in a direction for which they are in an	*Motorcycle and automobile operators* Drivers and riders must make early tentative decisions and competent final decisions in relation to lane

MOTORCYCLE OPERATION (continued)

Concept	Student performance indicator		
	Classroom	Simulator	Vehicle
Decision making (continued)	created from a sample of road and traffic conditions.	improper lane must demonstrate their tentative decision to turn by using the proper lane change procedure and "setting up" for the turn while making their final decision to enter the intersection as they make their final search.	changing, intersections, critical situations, and dealing with multiple risks.
The perceptual tasks			
Expectancy	Given a list of key words regarding the "riding task," students must identify the concept "expectancy" as being prerequisite to successful searching.	*Motorcycle simulator* Early in a simulated film sequence, students must state their decisions regarding search pattern based on the location of "expected" traffic elements.	*Motorcycle operator* When "searching," the rider must "expect" to identify certain types of situations or conditions in order to make properly timed and placed eye movement.
Setup	Students must identify in a multiple-choice situation that the concept of "setup" for the cyclist implies the control of the vehicle's ability to roll, pitch, and yaw. In a matching format, students must identify that approaches to intersections and critical situations require a "setup" between tentative and final decisions.	*Motorcycle or automobile simulator* In simulated situations in which students approach intersections or critical situations, they must (1) set up their position and speed; (2) place their feet against the footpegs; (3) adjust their center of gravity; and (4) brace appropriately to control roll, pitch, and yaw.	*Motorcycle and automobile operators* Students must "set up" for approach to intersections or critical situations and must identify when other highway users are making their "setup" and must predict the intentions of the others.
On-guard position	Students must list the characteristics of the "on-guard" position for drivers and for motorcycle riders and their passengers.	*Motorcycle or automobile simulator* During a filmed sequence, students must take the appropriate actions necessary to assume the "on-guard" position.	*Motorcycle and automobile operators* Students must assume the "on-guard" position in approaches to intersections or critical situations.
Road and traffic conditions	Given a written presentation involving a number of hazardous road and traffic conditions, students must identify nine (out of a list of ten)	*Motorcycle or automobile simulator* When students are presented with situations involving their driving through various road and traffic conditions,	*Motorcycle and automobile operators* Students sharing the road with motorcycles in situations involving various road and traffic conditions must

Road and traffic conditions (continued)	which are more critical to the motorcyclist than to the driver. The student must be able to offer accurate predictions of the results of improper handling of the conditions in the previous exercise and describe appropriate decisions in dealing with these conditions.	they must identify those situations which would be more critical to the motorcycle than the car.	make decisions with the consideration that the conditions may be more critical to the motorcycle. For example, the student might decide to allow three or more seconds of following distance, yield right-of-way, or make lane changes to separate from or compromise between risks involving the motorcycle.
Puddle	Given three minutes writing time, a student must be able to list or explain (in a paragraph of about five sentences) three hazards which result when a motorcycle attempts to negotiate a puddle. Students must also describe how to deal with each of the hazards.	*Motorcycle or automobile simulator* In any simulated sequence which shows a puddle, students must suggest three hazards resulting from puddles which are more critical to the motorcycle than to the automobile.	*Motorcycle and automobile operators* Students in traffic in which a motorcycle is approaching a crossing or leaving a puddle will separate from the motorcycle.
Puddle setup	Students must outline the use of IPDE in allowing early "setup" for puddle negotiation and must identify likely actions of the rider (which a driver near the situation would identify) given a list of random rider actions.		*Motorcycle and automobile operators* Drivers and riders sharing a roadway environment which includes a puddle will include the consideration of each other's tasks in decision making. *Automobile driver* Drivers will perceive the rider's "setup" action in context and will "set up" for a critical situation involving the motorcycle and the puddle.
Road surfaces	Given a series of descriptions of road surfaces, students must identify nine (out of a choice of ten) which constitute a hazard more critical to the motorcycle than the automobile.	*Motorcycle or automobile simulator* When students are presented with filmed sequences that include various road surfaces, they must identify those road surfaces that are more critical to the motorcyclist than to the automobile operator.	*Motorcycle and automobile operators* Students on road surfaces more critical to the operation of a motorcycle than an automobile will allow the motorcycle an extra space cushion (for example, three seconds following distance).
Hazards on road surfaces	Given pictures of hazards which exist "on" road surfaces, students must identify eight (out of a choice of ten) which present a special hazard to motorcyclists.		*Motorcycle and automobile operators* Students must identify conditions on the surface of the roadway which may necessitate a motorcyclist to change riding behavior. Drivers must coordinate their movements to protect a motorcyclist.

MOTORCYCLE OPERATION (continued)

Concept	Student performance indicator		
	Classroom	Simulator	Vehicle
Ball in road	In a multiple-choice format which lists various risks to motorcyclists associated with a ball in the road, students will select: 1. A child will follow. 2. Ball may upset bike.	*Motorcycle or automobile simulator* In a filmed situation which involves a ball rolling into the road, students must identify the further hazards which confront a motorcycle.	*Motorcycle and automobile operators* Students identifying a ball rolling into the path of a motorcycle must predict not only that a child will follow but also that the motorcycle could become unstable as a result of striking the ball.
Metal grating	Students must draw and label a top-view diagram of a motorcycle crossing a metal grating bridge with a car following.		*Motorcycle and automobile operators* Students crossing a bridge with a metal-grating road surface must identify the motorcyclist's problem and predict cyclist's behavior.
Railroad tracks	Students must draw and explain a diagram depicting proper and improper methods for "setup" and crossing a track. Students must identify from a list of cycle actions the following hazards as those which confront a motorcycle at a railroad crossing: 1. Unplanned direction change 2. Catching a wheel (causing yaw) 3. Bike pitching forward	*Motorcycle or automobile simulator* Students must explain proper railroad crossing techniques for a motorcycle during a filmed sequence involving an approach to railroad tracks.	*Motorcycle and automobile operators* Students identifying a motorcycle approaching a railroad track must: 1. Identify early. 2. Predict cycle behavior. 3. Adjust auto to situation. 4. Choose an escape route in case the cycle "goes down."
Animate objects	Students must select "dogs or other animals" from a list of traffic concepts as hazards more critical to the motorcyclist than to the automobilist. Students must identify clues to an impending "dog" hazard and evaluate the advantages or disadvantages of various avoidance techniques.	*Motorcycle or automobile simulator* Students will discuss avoidance techniques for cars and motorcycles when a filmed sequence presents a dog running into the roadway.	*Motorcycle and automobile operators* Students must expect that dogs or other animals may run into traffic to chase motorcycles (which are especially provocative to dogs) or may merely run across the cycle's path. Students must allow the motorcycle extra room to employ an avoidance technique or extra room in case the animal causes the motorcycle to upset.

Operator readiness for passenger carrying	In a multiple-choice format, students must identify physical, procedural, and behavioral prerequisites for a rider to carry a passenger.		*Motorcycle operator* Students will not ride as a passenger on a motorcycle unless the cycle operator is competent in all skill areas.
Passenger readiness for motorcycling	Students must acknowledge in a true-false format that various elements of passenger readiness are critical to survival.		*Motorcycle operator* Students will not carry passengers on their motorcycles unless the passengers are competent cycle riders. *Motorcycle and automobile operators* Students must satisfy the requirements described as "passenger readiness" if they choose to become a motorcycle passenger.
Vehicle readiness for passenger carrying	Students must name two legal requirements for motorcycle passenger carrying. Students must describe an automobile driver's perception of the weight-capability ratio in relation to motorcycles carrying passengers in traffic.	*Motorcycle simulator* Students must identify elements of the legal requirements for carrying motorcycle passengers and must decide whether the equipment on the simulator is adequate for the task of carrying a passenger.	*Motorcycle and automobile operators* Students will ride as a passenger only if the vehicle is ready for the task.
Carrying a passenger			
Operator tasks	Students must identify (as true) in a true-false format four operator tasks (out of a choice of five) for motorcycle passenger carrying.		*Motorcycle and automobile operators* Students deciding to ride as a motorcycle passenger will not impair the cycle operator in performing his tasks. Students deciding to ride motorcycles and to carry a passenger will perform the necessary tasks properly.
Passenger tasks	Given a list of tasks related to the operation of a motorcycle (including carrying passenger tasks), students must identify eight (out of a choice of ten) which are the tasks of the passenger.		*Motorcycle and automobile operators* Students who decide to ride as a passenger on a motorcycle must contribute to the skillful operation of the vehicle by properly performing all motorcycle passenger tasks.
Driver perception	In a true-false format, students must identify three conditions (out of a choice of five) which may hamper a		*Motorcycle and automobile operators* Students identifying a motorcycle operator carrying a passenger must:

MOTORCYCLE OPERATION (continued)

Concept	Student performance indicator		
	Classroom	Simulator	Vehicle
Driver perception (continued)	motorcycle rider as a result of carrying a passenger.		1. Predict that the performance of the vehicle may have new limitations. 2. Predict unusual motorcycle behaviors. 3. Compensate for the various limitations of the cycle operator with a passenger by the timing and placement of the student's own vehicle.

CHAPTER 7

ALCOHOL AND DRUG ABUSE

Individuals who have reached a certain age and are deemed responsible are permitted to do a number of things denied those younger and less mature; driving a motor vehicle is one of those things. With these privileges are concomitant obligations of legal and responsible behavior to oneself and others.

The ingestion of chemical substances–drugs or alcohol–in an illegal or irresponsible fashion, coupled with driving a motor vehicle, is a major cause of death and disablement. Each year traffic accidents result in 250,000 injuries and over 50,000 fatalities. The greatest single cause of traffic-related deaths and accidents is alcohol abuse.

In 1972, California youths under the age of twenty-five years were responsible for 62 percent (1,285) of all drug-related and 30 percent (4,950) of all alcohol-related vehicle injuries and deaths.

Educators generally agree that alcohol and drugs and their effects on the youth of our nation must be openly and honestly discussed in the schools. While educational philosophies and techniques may vary, any approach to teaching the effects of alcohol must recognize that behavior is an individual matter. The individual has the right to accept or reject the use of alcohol within the dictates of his or her familial, religious, and social identification. If the person abuses this right, he or she must accept societal and personal penalties.

Definition of Terms

The following are definitions of the most common terms related to alcohol abuse.

Absorption—The passage of alcohol and digested nutrients through the walls of the stomach and intestines to the bloodstream.

Alcohol—An intoxicating chemical (C_2H_5OH) which affects the central nervous system when taken internally.

Alcoholic—A person addicted to excessive use of alcoholic beverages.

Blood alcohol concentration (BAC)—The relationship of alcohol by weight to a given volume of blood. It is often expressed as blood alcohol level (BAL).

Blood alcohol level (BAL)—Concentration of alcohol in the bloodstream expressed in percent.

Chemical test—Analysis of the breath, blood, or urine sample to determine the presence and/or amount of alcohol in the bloodstream.

Cirrhosis—A disease of the liver often called "the alcoholic's disease."

Comatose—In a coma or unconscious.

Depressant—Chemicals, such as alcohol and certain other drugs, that produce a temporary slowdown of the central nervous system.

Impaired—Lessened in ability to perform a specific task.

Implied consent—Any person who drives a motor vehicle on a highway shall be deemed to have given consent to undergo a chemical test for determination of blood alcohol content when apprehended by a police officer.

Intoxicated—Drunk. Literally, it means poisoned. It may also mean "under the influence" of intoxicating beverages.

IPDE—The driving task described in terms of identify, predict, decide, and execute.

Misdemeanor—An offense or crime punished usually by a fine and/or imprisonment in other than a state prison.

Oxidation—The process through which the liver breaks down blood alcohol into carbon dioxide and water.

Presumptive limit—The amount of blood alcohol concentration that is prima facie evidence of driving under the influence of alcohol. In California, this BAC is .10 percent.

Revocation—To cancel out; to take back. A driver's license may be revoked by the Department of Motor Vehicles for certain violations such as drinking and driving.

Synergestic effect—The effect of ingesting alcohol in combination with other drugs is greater than the total of the effects of each substance.

Tolerance—A person's capacity to absorb alcohol continuously or in large doses without noticeable adverse effects.

Under the influence—The term used to indicate the BAC that would normally impair body functions to the extent that it would be unsafe to drive a vehicle. In California a BAC of .10 percent is prima facie evidence of being under the influence.

The Drinking Driver Problem

Does alcohol kill? If so, why and how does it kill? What can an individual do to prevent alcohol abuse? The following paragraphs present the background information that is needed to understand the answers to these vital questions.

Alcohol Content of Alcoholic Beverages

Alcoholic beverages vary in characteristics and alcohol content. Beer and ale are the result of fermenting broth made from cereals; they vary from 3 to 6 percent in alcohol content. Wine is made from the action of yeast on the sugars present in fruits and varies from 11 to 20 percent in alcohol content. Hard liquors are distilled from fermented products: grains to gin, rye, and bourbon; molasses to rum; potatoes to vodka; and cactus to tequila. They vary from 40 to 50 percent in alcohol content. Brandy is distilled from wine products and is approximately 40 percent alcohol.

The Effects of Alcohol in Relation to BAC

The first effect of alcohol is upon the brain (cerebrum), which controls reasoning, judgment, and social behavior. After the first feeling of stimulation, alcohol acts as a depressant. The driver may think he is driving better than usual, but he is *not* driving as well. As alcohol concentration increases, most of the cerebrum is affected as are the centers that control the sensorimotor functions. The result is emotional instability, retarded responses, impaired vision, and lack of coordination.

The effects of alcohol increase approximately as the square of the blood alcohol concentration. Therefore, the effects of .08 percent concentration are four times greater than the effects of .04 percent. Reaction time is increased by alcohol use. Reaction time may be affected when the BAC is less than .05 percent. A study by the National Transportation Safety Board determined that the likelihood of a driver causing a highway accident begins to increase noticeably at a BAC of about .04 percent; at .06 percent, the chances are four times as great; at .10 percent, more than six times as great; and at .15 percent, about 25 times as great.

A person's ability to drive may be impaired when his BAC is below .05 percent. A 150-pound person will usually reach .05 percent within one and a half hours after the consumption of three ounces of hard liquor or two bottles of beer. When a driver reaches .10 percent BAC, it is impossible for him to overcome the effects of the alcohol by any type of willful self-control, such as drinking coffee.

Some drinkers will be in a state of intoxication at a BAC of .15 percent and may be semicomatose at a BAC of .20 percent. In most states, including California, the presumptive limit as evidence of being "under the influence" is a BAC of .10 percent. Various states set the limit at .08 percent, while in others it is .15 percent.

The Physiological Effects of Alcohol

Ingested alcohol is absorbed immediately into the bloodstream and is carried to all parts of the body. The rate at which alcohol enters the bloodstream depends on the following:

1. Rate at which alcohol is ingested
2. Amount of alcohol ingested
3. Contents of the drink (Straight liquor is absorbed more rapidly than liquor diluted with water.)
4. Amount of food and other beverages in the stomach

Just as the body must eliminate food wastes, so must it eliminate alcohol. The chemical process of elimination is oxidation, which occurs in the liver. A small percentage of alcohol is eliminated through the kidneys, breath, and sweat glands. Oxidation of alcohol occurs at a steady rate of about .015 percent per hour after a person has stopped drinking and after absorption is complete. The rate of oxidation may vary with different people from .01 percent to .025 percent.

When alcohol is consumed and absorbed more rapidly than it can be oxidized, alcohol and its effects will "pile up." Thus, the more one drinks before driving, the more likely one is to have an accident and the more likely injuries and damage will be greater. Evidence is clear that the likelihood of crash involvement increases at about the .05 percent level and becomes progressively and disproportionately greater at higher concentrations.

Artificial means of "sobering up" are not effective. Alcohol must first be absorbed into the bloodstream and then oxidized by the liver: *This takes time.* Drinking coffee, taking vitamins, inhaling oxygen, and taking cold showers will *not* speed up the oxidation process.

Time, after drinking is stopped, is the only factor a drinking driver can depend upon to lower the BAC to a point at which he or she may be considered capable of driving. The amount of time for alcohol to be completely absorbed and oxidized is dependent on the following:

1. The number of drinks consumed
2. The amount of alcohol in the drinks
3. The amount of time taken to drink them
4. The weight of the drinker
5. The amount of food in the stomach before drinking
6. The time between the start of drinking and the time the measure is made
7. The time between the end of drinking and the time the measure is made

It is generally agreed that almost any amount of alcohol in the blood will be accompanied by a decrease in ability to operate a motor vehicle. Research indicates that generally there is between 25 and 30 percent impairment in driving ability at BACs of about .05 percent.

No driver can predict consistently how a given amount of alcohol will affect bodily or human functions related to the driving task. Alcohol has an effect on vision similar to that of driving with sunglasses in twilight or darkness. Alcohol adversely affects the ability to comprehend. The ability to concentrate on two activities simultaneously is affected at low blood alcohol concentrations. Eye muscle coordination is decreased by alcohol; driving response to visual clues is slowed and is usually exaggerated.

Research indicates that steering movements become more unstable (less steady) with small or moderate doses of alcohol. Responses are slowed because muscular coordination is impaired due to alcohol's effect on the nerves which control the muscles. This could make a critical difference in stopping distance and the ability to maneuver the vehicle.

The young driver does not have the driving experience of the adult driver; the young adult lacks experience in compensating for the effect of alcohol. A teenager is more likely to fall prey to psychological intoxication and its effects of abnormal excitement, recklessness, and poor judgment.

Usually the teenager is not as concerned about economic loss and liability as is the adult. The reaction to alcohol, drugs, and medicines taken in combination is greater than the sum of their individual effects.

Personal Responsibilities

The decision to drink and drive is an individual decision. Most young adults drive and some will drink. Reasons for drinking include the following:

1. Cultural background and custom
2. Peer pressures and social relationships
3. Curiosity and experimentation
4. Special festive occasions
5. A desire to escape pressures of society

Alternative actions to drinking and driving, also personal decisions, include the following:

1. Acquire accurate information about the effects of alcohol.
2. Analyze personal values and attitudes concerning drinking and driving.
3. Develop a personal approach to handling social situations in which drinking and driving are involved.
4. Avoid any situation in which drinking and driving are involved.

When the driver has failed to take an alternative and has consumed alcohol, other decisions can be made.

1. Before driving, wait until the absorption-oxidation process is complete.
2. Ask a nondrinker to drive.
3. Call a taxi.
4. Telephone the local police for a ride home.

The Drinking Pedestrian

The drinking pedestrian takes his place in the stream of traffic very much as the driver of a vehicle; he or she must identify, predict, decide, and execute. Impairment of the human and bodily functions by the use of alcohol decreases effectiveness as a pedestrian. Pedestrian traffic clues related to vision, hearing, and feeling are affected negatively by alcohol.

The drinking pedestrian is often unable to visually isolate the driver when entering the traffic stream to assume the role of pedestrian. A recent study indicated that alcohol is the largest single contributor to pedestrian-traffic deaths, with 41 percent of the pedestrian victims who were sixteen years of age and older having BACs of .10 percent or higher. Breakdown of age-groups showed that 70 percent of the forty-six to fifty-five year olds had BACs of .15 percent or higher at the time of death.

Risks of the Drinking Driver

Risks are increased for the drinking driver. The negative effect of alcohol on bodily and human functions increases the risks involved in the operation of the vehicle. Conviction of the offense of driving while under the influence of intoxicating beverages may result in one or more of the following:

1. License suspension or revocation–loss of driving privilege
2. Fine or imprisonment
3. Impounding of vehicle
4. Being labeled a negligent operator
5. Refusal to issue a driver's license by the Department of Motor Vehicles
6. Loss of employment opportunities
7. Increased insurance rates

Other highly important risks are the following:

1. Possible death or injury to self and others
2. Property damage and possible legal action
3. Loss of personal respect

Alcohol as a Cause of Accidents

Alcohol is the most important single human variable associated with fatal injuries on the nation's highways. In 1968, the U.S. Secretary of Transportation reported that alcohol was the cause of at least 800,000 auto accidents and 25,000 auto-accident fatalities yearly.[4] The loss to the family due to injury or death of the family breadwinner cannot accurately be estimated but is considerable. Personal loss from traffic accidents has a decidedly negative impact on the civic, professional, and business community.

Government Role in Reducing the Drinking Driver Problem

The Highway Safety Act of 1970 provided for establishment of the National Highway Traffic Safety Administration (NHTSA) in the U.S. Department of Transportation. The NHTSA has issued 18 traffic safety standards, including "Alcohol in Relation to Highway Safety."[5] The purpose of the alcohol standard is to broaden the scope and number of activities directed toward reducing traffic accidents caused by persons driving while under the influence of alcohol.

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[4] *Alcohol Safety Countermeasures Program.* Washington, D.C.: U.S. Department of Transportation, 1970, p. 2-1.

[5] *Highway Safety Program Standards.* Washington, D.C.: U.S. Department of Transportation, 1974, p.9.

The Alcohol Safety Action Program (ASAP) is a program of NHTSA which was initiated to get problem drinkers off America's highways and keep them off until their problem is alleviated. One of the ASAP locations is in Los Angeles County.

The California Office of Traffic Safety provides funds and direction for programs such as the Orange County Alcohol and Traffic Safety Project.

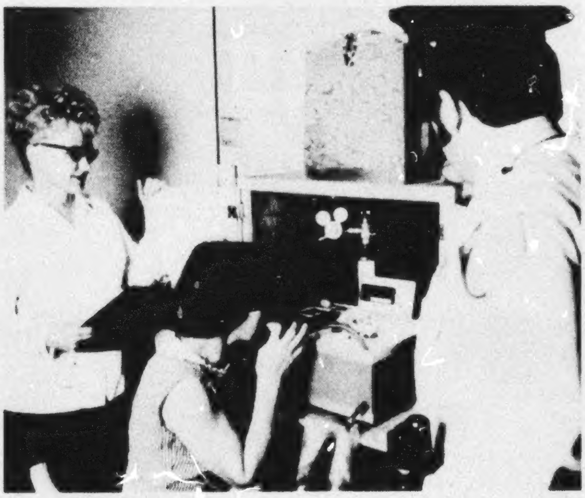
The California Education Code requires school districts to conduct alcohol and drug education programs at kindergarten through grade twelve levels. A unit on the effects of alcohol and drugs on the driving task is a requirement in driver education.

School districts conduct educational programs for those who have been convicted by the courts of driving while under the influence of intoxicating substances.

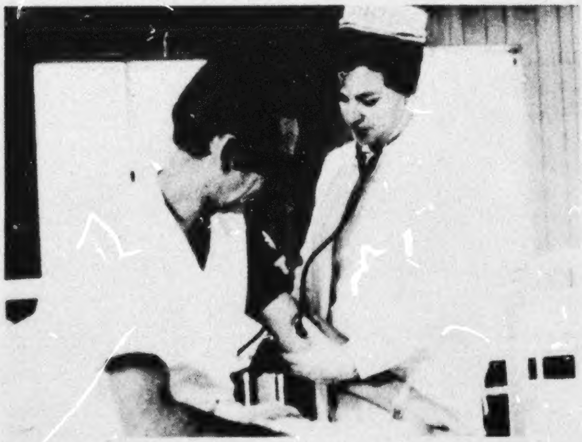
Other community agencies provide direction for the alcoholic and the drinking driver. These agencies include the following:

1. Alcoholism services
2. Alcoholism councils
3. Alcoholics Anonymous
4. County medical centers
5. Departments of mental health

Alcoholism . . .



1. Law Enforcement



2. Detoxification

3. Education

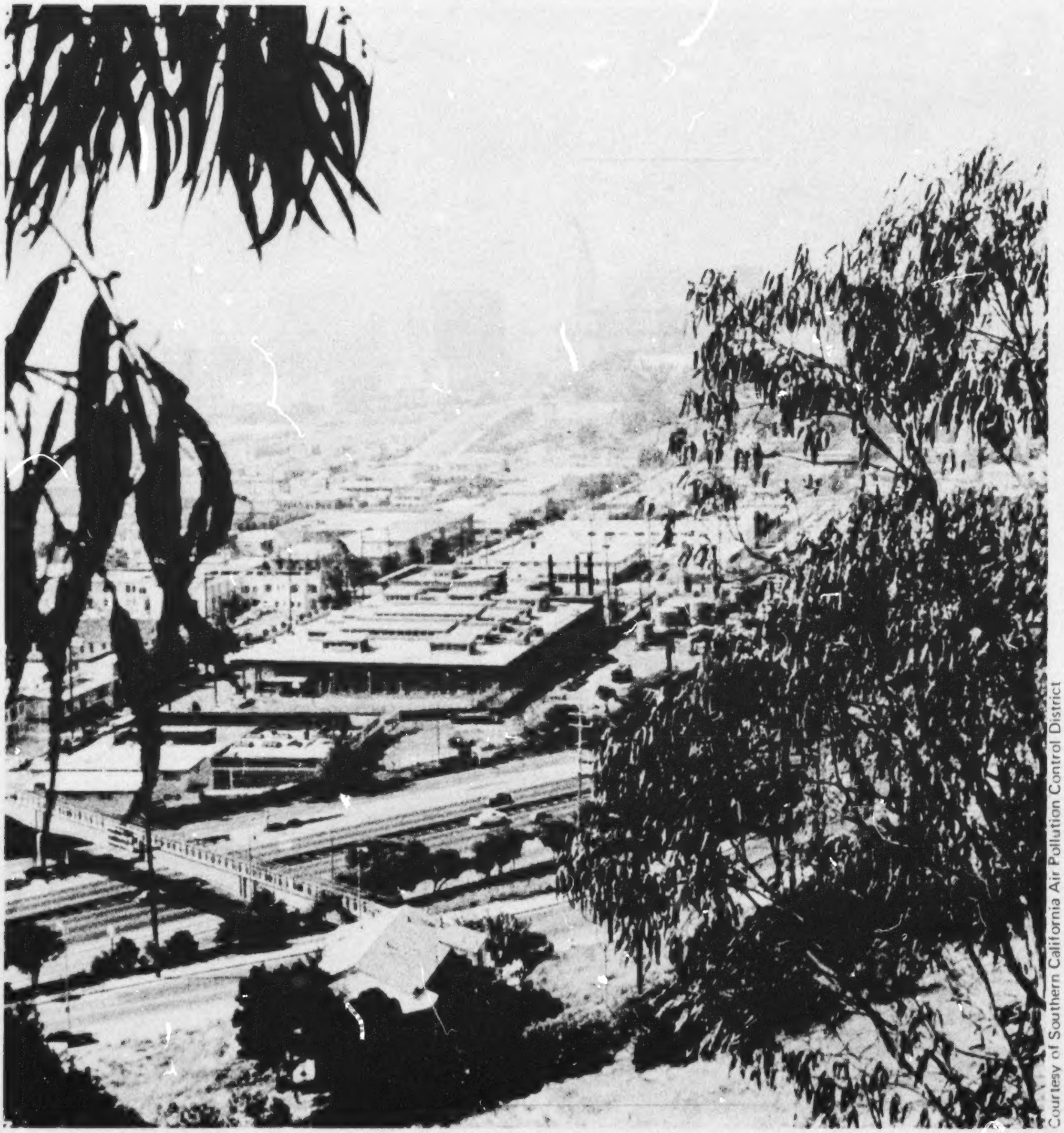
4. Counseling and Therapy

THE DRINKING DRIVER PROBLEM

Concept	Student performance indicator:	Learning activities
	Classroom	
Terminology	Demonstrate an understanding of the terms relating to alcohol and the drinking driver.	Discuss a teacher-prepared list of terms, giving personal interpretations of their meanings. List the basic types of alcoholic beverages, and describe their distinguishing characteristics.
Physiological effects of alcohol	Determine the bodily and mental functions (speech, vision, judgment, reaction time, coordination, and so forth) involved in the driving task, and describe how they are affected by the consumption of various amounts of alcohol. Describe the physiological effects of alcohol, and describe some common misconceptions about its use. Describe the effects of alcohol on the human functions involved in driving (identification, prediction, decision, and execution) in the order that the effects are likely to occur as the concentration of alcohol increases.	Review visual perception, judgment, steering skills, decision making, reaction time, and visual tracking; indicate how these functions are affected by .10, .15, and .20 percent blood alcohol levels. List the significant misconceptions about drinking and driving. Refer to an alcohol body-weight chart, and explain the importance of the alcohol tolerance factor and how it varies among individuals. Review the human functions involved in the driving task, and discuss recent research on the effect of alcohol on these functions. View the filmstrip *Perception of Driving Hazards.* Refer to an alcohol body-weight chart, and determine the effects of varying amounts of alcohol on the human functions related to IPDE.
Motivations for alcohol abuse	Explain why the effects of alcohol are likely to be more pronounced in young people than in adults. Identify and evaluate the factors that motivate young people to drink and drive.	Prepare for class discussion a brief interpretation of the statement "beginning drivers must be alert drivers." Relate personal experiences and observations regarding the motivations for drinking and driving.
Control of the drinking driver	Identify and evaluate the potential of legislation, law enforcement, and social programs for reducing alcohol-related highway accidents and fatalities.	List the significant California laws regarding drinking and driving, and evaluate their effectiveness as accident deterrents. Discuss with a representative of the Department of Motor Vehicles the drinking-driver laws and their relationship to the driving privilege. Describe the process of identification, apprehension, and conviction of a drinking driver. Discuss the film *The Social Drinker–The Antisocial Drinker* and its content in relation to the control of the drinking driver.

THE DRINKING DRIVER PROBLEM (continued)

Concept	Student performance indicator:	Learning activities
	Classroom	
Control of the drinking driver (continued)		Discuss drinking control programs currently conducted by local law enforcement agencies and the California Highway Patrol. Review and evaluate the efforts of the federal government to control the problem drinking driver. Evaluate the current California drinking driver laws, recommend legislation for consideration, and describe alcohol control programs.



Courtesy of Southern California Air Pollution Control District

The most serious kind of air pollution in California is smog, which is most noticeable because of reduction in visiblity and eye irritation.

CHAPTER 8

AIR POLLUTION

Air is considered polluted when it contains enough foreign materials to have a bad effect on people, animals, or plants, and when these effects are caused by contaminants produced by people in contrast to those from natural sources. Air is polluted mainly by:

Sulfur oxides—mostly from burning coal and fuel oil

Carbon monoxide— primarily from automobile engines

Hydrocarbons—also from automobiles for the most part

Particulates—particles of liquid or solid matter from almost any human process

Nitrogen oxides—mainly from automobiles and steam power plants

Flourides—from fertilizer and aluminum manufacture, smelting, and the production of ceramics

Photochemical smog—the result of the action of sunlight on auto exhaust fumes

Lead—from smelters, pigment-making plants, and, as a component of gasoline, auto exhausts

Causes of Air Pollution

Several processes contribute to air pollution. One is *evaporation*—of liquids like gasoline. Another is *attrition*—activities like grinding and drilling. But most air pollution comes from *combustion*—in furnaces, vehicles, incinerators, and open dumps.

As people become more dependent on technology, the air becomes increasingly contaminated.

Millions of tons of gases and particles are dumped into the air of California every year, the byproducts of society's myriad activities. Studies show that in recent years at least two-thirds of the air pollution in California is the result of the auto; it is the major contributor of the gases that create photochemical smog (hydrocarbons, nitrogen oxides, and carbon monoxide).

Another major pollution source is open burning. Open dump burning has now been banned except in sparsely populated areas. It will be completely eliminated in California by the year 1976 and replaced by sanitary landfills. Agricultural burning is limited to days when the weather permits good dispersal of the smoke.

Industry is the primary source of suspended particulates and sulfur dioxide. Other pollutants that contribute to smog are created by evaporation of paints, inks, solvents, and gasoline

Effects of Air Pollution

There are many types of air pollution, each of which affects people differently. The most serious kind of air pollution in California is photochemical smog, which is most noticeable because of reduction in visibility and eye irritation. Much still remains to be learned about smog, but it may be causing or significantly aggravating such respiratory disease conditions as emphysema, bronchitis, and asthma.

Carbon monoxide is a colorless, odorless gas, most of which comes from motor vehicle exhaust. In very high concentrations, it is a deadly poison. At concentrations sometimes found in metropolitan areas, carbon monoxide impairs to a measurable extent the oxygen transport functions of the blood. During a smog alert, when pollutants in the atmosphere approach high levels of concentration, physical activities must be curtailed.

Local sources of air pollution (usually industrial plants) can produce disturbing effects on the health of those living nearby. Smoke, soot, sulfure oxides, heavy metals, and other toxic chemicals may be emitted from the sources. Sufficient concentrations of these can cause respiratory irritation, interference with lung function, or other toxic reactions. Improved techniques of detection and more precise studies constantly provide information in addition to what is now known of the influence of air pollution on human health.

Air pollution has important effects on other forms of life and matter than humans. Among these are the following:

- *Effects on animals*–Through the years animals have paid for the "advances" of Homo sapiens. Because the food that animals eat is contaminated by pollutants and because the effects of air pollution on animals are easier to verify in a laboratory, it is a known fact that contaminated air cannot only cripple and kill animals but can cause some animals to yield fewer eggs, to produce less milk, and to undergo many other debilitating effects.
- *Effects on vegetation*–Vegetation most rapidly announces the presence of pollution. Air pollution affects the growth and yield of plants. Studies continue to confirm that pollutants are affecting the nutritional value and the survival of the crops upon which humans depend for food.
- *Effects on materials*–Air pollution can corrode metal, erode stone, and cause rubber to crack. It can make paper brittle and leather disintegrate.
- *Effects on visibility and air freshness*–Two major complaints from the general public about air pollution are odor and interference with visibility. Both are widespread.
- *Economic effects of pollution*–This nation suffers profound economic losses from dirty air. Some of these losses are reflected in higher medical costs, increased maintenance costs, greater employee absenteeism, reduced or destroyed crops, loss of livestock, higher cleaning bills, and higher food bills.

Reduction in Air Pollution

Two basic approaches can be used to reduce auto-related air pollution. The first is to reduce the harmful emissions of each vehicle through the use of pollution control devices and engine modifications. The second is to reduce emissions by reducing usage of automobiles and motorcycles.

Pollution Control Devices

Evaporation of gasoline contributes pollutants to the air. Since 1970, California law has required that every new car sold in the state be equipped with a special device to eliminate emissions from the carburetor and fuel tank. However, additional evaporation occurs at the gasoline pump. One way to help prevent this latter form of pollution is to ask the attendant not to "top off" the gas tank after the pump has automatically shut off.

California has also implemented crankcase controls to eliminate the leakage of unburned fuel from the space between the piston and cylinder wall into the crankcase. Present crankcase controls are very effective.

There has been a steady tightening of the emission standards to make the exhaust-control devices more effective. American-made vehicles sold in California since 1966 and foreign vehicles sold since 1968 have been required to have hydrocarbon and carbon monoxide control devices. Starting with 1971 models, nitric oxide controls were required. Further information about the requirements for exhaust-control devices may be obtained from the California Air Resources Board.

Pollution controls on new cars have reduced emissions of pollutants substantially. It has been found that 1975 model automobiles emit about 92 percent less hydrocarbons, 91 percent less carbon monoxide, and 31 percent less oxides of nitrogen than their pre-1966 uncontrolled counterparts.

Research is presently underway to determine the role of the motorcycle in air pollution. Currently smog control devices are not required on motorcycles, and for this reason, motorcycle pollution remains an area of concern.

Transportation Control Strategies

The phrase "transportation control strategies" is used to identify the various complex changes that must be made in the ways that people move from place to place. These changes are needed to achieve healthful air in the many urban areas in which the direct control of emissions from power plants, factories, apartment houses, and other stationary sources of pollution, coupled with pollution control of new cars, still does not effect the required degree of improvement in air quality.

The predicted upsurge in people, cars, and miles driven, if they occur, would mean that the air quality would worsen, despite the presence of cleaner engines. The only sane course of action is therefore to eliminate present overuse of the auto and to develop and use mass transit.

While the auto has made it possible for average citizens to enjoy a mobility unequalled in history, they may have allowed themselves to become too dependent on their dream machine. They have reorganized their cities and their lives to take advantage of the new mobility. In the United States, there is now one car on the road for almost every two people; yet one-quarter of the population cannot obtain auto travel—they are the old, the handicapped, and the poor. A possible solution to this problem would be the development of a balanced transportation system. Benefits from such a program might include more cohesive cities, jobs for the unemployed (construction and operation), better balance of trade through reduced gas consumption, and heightened urban land value. In addition to mass transit, the following would be components of a balanced transportation system:

1. *Carpools*—This can save a substantial amount of money each year as well as contribute to the fight for cleaner air.
2. *Bicycles and walking*—Bicycles are the most energy efficient vehicles, and they do not pollute. Walking is good for the health and the air.
3. *Exclusive bus lanes*—This would serve to streamline travel on regional transit systems and make them more appealing to the public.

In addition to the contamination of the air, an energy shortage has resulted from the extravagant use of the automobile to transport people and goods. Surveys indicate that in recent years, about three-quarters of all gasoline was consumed by the automobile. The surveys indicate further that in most commuting situations, each auto carried an average of only 1.2 persons per vehicle. From an economic standpoint, such waste is indefensible, especially in urban areas in which buses are nearly three times more efficient per passenger mile than the private automobile.

As population and affluence increase, there are more drivers, there are more cars in each family, and each driver drives more miles. The California Department of Transportation predicts that by 1995 each driver will travel 36 percent more miles than in 1968. If this comes true, it will be a disaster not only in terms of energy but also in air quality as well.

Individual Actions

Some ways for automobilists to conserve energy and reduce air pollution are the following:

1. From dead stop, accelerate slowly.
2. Avoid unnecessary braking.
3. Drive at steady, moderate speeds.
4. Avoid unnecessary use of air conditioners.
5. Avoid excessive idling.
6. Join a carpool.
7. Plan short trips carefully.
8. Keep your engine tuned up.
9. Check tire pressure.
10. Have wheels aligned properly.
11. Have brakes adjusted.
12. Don't "top off" the gasoline tank.
13. Change oil and filter as recommended.
14. Walk or ride a bike.

POLLUTANTS OF THE AIR

Concept	Student performance indicator	Learning activities
	Classroom	*The classroom instructors should enter activities in this column that fulfill student opportunities for meeting the performance indicators.*
The nature of air pollution	Summarize the reasons for the presence of pollutants in our atmosphere. Define air pollution. Demonstrate an understanding of three main processes that contribute to air pollution. List the air pollution control laws for your community. Demonstrate an understanding of the terms related to air pollution. Define "smog" and how it is formed. Give evidence to demonstrate the percentage of hydrocarbons and nitrogen oxides that are the result of the automobile. Demonstrate an understanding of the role of the U.S. Environmental Protection Agency and the California Air Resources Board in the battle for cleaner air. State at least five chemical components of air pollution and the major source of each. List the major causes of air pollution in California.	
Health effects of air pollution	Summarize the health effects of carbon monoxide on human beings. List the effects of living near the sources of air pollution in your region of the state. Predict future health effects if continued use of the auto goes unchecked. Contrast pollution in the urban centers with pollution in the rural areas. Explain why the effects of air pollution are more serious for people with respiratory diseases than for those without. Research and list the general health effects of air pollution.	
Other effects of air pollution	Summarize the effects of pollution on animals. Research specific effects of pollution on vegetation in your region of the state. Demonstrate from your personal experience how pollution limits the enjoyment of one's surroundings. Prepare a brief class presentation supporting the thesis that "the support and cooperation of every citizen is essential in the fight against air pollution." Investigate and report on the organizations and agencies in your area that could offer	

POLLUTANTS OF THE AIR (continued)

Concept	Student performance indicator	Learning activities
	Classroom	*The classroom instructors should enter activities in this column that fulfill student opportunities for meeting the performance indicators.*
Other effects of air pollution (continued)	information on the topic of air pollution and the automobile. Relate personal observations and experiences which illustrate the effects of air pollution on materials. Demonstrate an understanding of economic losses as a result of dirty air. Compare the cost of a car unequipped with pollution control devices to a vehicle fully equipped. State whether or not you feel the cost of auto pollution control is worth it. Compare the expenses of operating a smaller car with the costs of operating a larger vehicle.	
Reducing air pollution	Identify two approaches used in reducing auto-related air pollution. Prepare a brief paragraph for class discussion on air pollution devices presently being used to curb auto emissions. Predict the types of standards and emission-control devices that will be used for motorcycles. Research some of the alternative power sources now available to the auto maker and some not yet fully developed. Prepare a discussion of one of the following: rotary engine, diesel engine, turbine engine, steam engine, electric motor, or bottled gas engine. Prepare a report for the class on the auto inspection and maintenance programs in your area. Explain the role of the tailpipe in auto emission and air pollution. List the control devices presently used to remedy the tailpipe emission problem. List the California legislation introduced since 1961 to reduce auto emissions.	
Transportation control strategies	List evidence for the thesis that "Homo sapiens have become too dependent on the automobile." Explain how personal lifestyles have been affected by the automobile. Prepare an argument in favor of a balanced transportation system and explain how such a system would affect your community.	

POLLUTANTS OF THE AIR (continued)

Concept	Student performance indicator ·	Learning activities
	Classroom	*The classroom instructors should enter activities in this column that fulfill student opportunities for meeting the performance indicators.*
Transportation control strategies (continued)	Predict what might happen if the population continues to rise and more miles per person are driven each year. Explain how the energy shortage is partially the result of the overuse of the automobile. Identify at least ten ways to conserve energy when using the automobile. Explain the relationship between increased population and auto pollution. Research the degree to which auto emission controls affect car mileage. Report on the role of vehicle weight in fuel economy.	

Stockton Record

Two major complaints made by the general public about air pollution are odor and poor visibility. A major contributor is the automobile.

APPENDIX A

EVENTS IN THE HISTORY OF VEHICULAR TRAFFIC

1678 Newport, Rhode Island, passes first law in U.S. regulating the driving of horses. First recorded traffic accident in U.S. involves two horse-drawn vehicles.

1760 Nicolas Cugnot of France builds first self-propelled, steam-powered tractor.

1879 Selden applies for patent for safe, simple, and cheap road locomotive, light in weight, easy to control, possessing sufficient power to overcome extraordinary inclinations.

1887 Federal government regulates traffic between states through Interstate Commerce Commission (ICC). (In 1967 the Department of Transportation superseded the ICC.)

1893 Frank and Charles Duryea in Springfield. Massachusetts, build the first successful gasoline-powered motor vehicle in the U.S. It is a one-cylinder, four-horsepower model.

1895 First important American automobile race is held in Chicago on Thanksgiving Day and is won by Frank Duryea, who covers a 52½-mile course at a speed of 5.05 miles per hour.

1896 Henry Ford and Ransom Olds complete their first automobiles. Charles B. King builds and drives the first car seen in Detroit. Barnum and Bailey circus displays Duryea horseless carriage in a street parade. First automobile accident occurs in New York. (Henry Webb runs into Evylyn Thomas, a woman bicycle rider.)

1897 Stanley twins establish steam car company.

1898 First woman driver: Mrs. Eva Madge Nelson, who drives a Waverly Electric.

1899 First traffic fatality: Charles Bliss (in New York City), steps from a street car and is hit by an automobile. First American garage is established in New York City. U.S. War Department buys three automobiles, all equipped with provisions for mule power if the automobiles fail to operate.

1900 New York becomes the first state to require automobile registration. Owner is required to pay a one dollar fee and put his initials in three-inch-high letters on the back of his automobile. Missouri requires registration in each county in which an automobile is driven and a special fee to drive in St. Louis, thus costing $30 to $50 to drive through the state. First national automobile show is held in Madison Square Garden. The Ohio, built by Packard, adopts the steering wheel instead of the tiller. Fifty-one new makes of automobile are produced during the year. The old-time mixing valve is replaced by a carburetor.

1901 Oldsmobile equips car with first speedometers. Autocar is first with shaft drive.

1902 Locomobile is first American car with engine mounted in front. American Automobile Association is organized. First spark batteries are used for ignition system.

1903 First operator's licenses are required in the District of Columbia. Radiators of copper tubing with cooling fins are introduced. Windshield, canopy top, and shock absorbers are introduced.

1904 Demountable rims appear. Prest-O-Lite Company is formed to furnish acetylene gas in tanks for automobile headlights.

1905 First car theft occurs, in St. Louis. First California vehicle registration—John D. Spreckles of San Francisco pays two dollars to register his White Steamer. First car is reported sold on installment plan. Tire chains, ignition locks, and spare wheels appear.

1908 Electric lights are used for the first time on automobiles.

1912 First automatic electric starter appears.

1913 Ford produces 1,000 Model T cars per day. National Safety Council is formed.

1914 First traffic control signals are installed in Cleveland, Ohio.

1916 William Fulton at Gilbert (Minn.) High School, an auto mechanics teacher, introduces a study of rules of the road and follows that by actual behind-the-wheel instruction. Instruction is provided in a Cole Eight, a Buick, a Hupmobile, a Packard, and a 15-cylinder Thomas Flyer.

1919 *Education in Accident Prevention* by Enoch G. Payne is published and used widely in schools.
1921 First standard-type transmissions are introduced.
1923 Girls are admitted to the Gilbert High School driver education program. Four-wheel brakes are introduced.
1924 Double-filament headlight bulbs appear.
1925 Front and rear bumpers are now standard equipment.
1928 Shatterproof glass is standard equipment on Ford automobiles. Coast-to-coast bus service begins.
1929 First driver education instruction in California is at Orland. Foot-controlled dimmer switches are introduced. California Legislature enacts law that says elementary and secondary schools must give instruction in public safety and accident prevention "primarily devoted to avoidance of the hazards upon streets and highways."
1930 Police prowl cars are equipped with police-band radios.
1931 The 50-millionth U.S. motor vehicle is produced.
1933 Independent wheel suspension is introduced.
1934 Professor Amos E. Neyhart of State College (Penn.) starts first formal class with separate classroom and laboratory experiences devoted solely to driver instruction. He uses his own 1929 Graham Paige with added controls. Gearshift lever appears on dashboard.
1936 First parking meter is installed in Oklahoma City by Chief of Police Dan Hollingsworth. The local Rotary provides first financial assistance to the Pennsylvania State College driver instruction program by paying for gasoline, oil, and some classroom materials.
1937 Lane Technical High (Chicago) obtains 30 "dummy cars" from the Chicago Police Department for driver instruction. First citywide program of driver education in Cleveland is instigated by Leslie R. Silvernole. Steering column gearshift lever is introduced. Coil springs are introduced.
1939 First automatic-type transmission is introduced. Hood lock under dashboard appears. Sealed-beam headlights are introduced.
1940 California's first driver education class is at Ferndale.
1942 Production of civilian cars is halted February 9. National speed limit is cut to 35 miles per hour.
1944 Passenger cars are scrapped at rate of 4,000 per day.
1945 Marshall Crawshaw at University High in Los Angeles offers first complete driver instruction course with behind-the-wheel training. Civilian production of passenger cars resumes on July 1.
1946 The Stout 46, a car with fiberglass body, is shown. Vacuum-operated windows are introduced.
1947 First driving simulator is hand built by American Design and Development Company. California Education Code is amended to require that classroom driver education be provided for all California students before graduation.
1948 Tubeless tires are introduced.
1949 M. Eugene Mushlitz, State Consultant in Secondary Education, coordinates early driver instruction in California.
1951 Power steering is introduced by Chrysler.
1953 Financial assistance ($30 per student) is given to California school districts for behind-the-wheel instruction. California Driver Education Association (CADA) is organized in June as a result of correspondence between Gordon Stanton of Los Angeles and Robert Fraser of San Francisco Bay Area. Passenger car power brakes are developed.
1955 Reseda High School installs first simulators in California as part of the regular class instruction.
1956 John R. Eales is appointed State Consultant for Driver Instruction.
1957 California legislation increases financial assistance for driver education to $35 per student.
1961 California legislation increases financial assistance for driver education to $42 per student.
1962 Seat belt anchorages are installed for front seats. California legislation increases financial assistance for driver education to $45 per student.
1963 Front amber turn signals are introduced. The California Motor Vehicle Pollution Control Board (MVPCB) requires new American-made cars sold in California to have crankcase-control devices.
1964 San Juan School District is first in California to use off-street driving range.
1965 The MVPCB requires new foreign-made cars sold in California to have crankcase-control devices.
1966 National Traffic and Motor Vehicle Safety Act is signed into law by President Johnson. California legislation increases financial assistance for driver education to $50 per student. Driver licensing age is established at 16 years. Driver-training teacher qualification is set at six units. New American-made cars sold in California are required to have exhaust-control devices.
1967 The California Legislature creates the California Air Resources Board (ARB), which replaces the MVPCB.
1968 Driver Education Unit is established within Department of Education. The federal government requires all cars sold in the U.S. to have crankcase- and exhaust-control devices.
1970 Evaporative emission-control devices are required for all new vehicles sold in California.
1971 The federal government requires all new cars to have evaporative emission-control devices. California requires all new cars sold in the state to have nitrogen oxide control devices.
1972 First blowout simulator is used in California high schools in Carmel.
1973 California legislation increases financial assistance for driver education to $60 per student. The federal government requires all new cars sold in the U.S. to have nitrogen oxide control devices.

APPENDIX B

ACTION WORDS AND PHRASES FOR USE IN DRIVER TRAINING

Concept	Description or activity	Teaching tips
Fundamental skills		
Captain of the ship	The student makes sure (visually or verbally) that doors are closed and locked and that all passengers have lap and shoulder assembly on prior to starting the engine.	This technique will develop driver responsibility for the safety of the driver and his or her passengers. The teacher should ask students to relate personal experience when such procedures are not followed.
Drive position	When driving, the student bends his or her knees slightly when the ball of foot is on the brake or gas pedal; the student's eyes should be two to four inches above the steering wheel.	The teacher should introduce this concept during the first lesson. The student must be comfortable if he or she is to learn and enjoy the driving task.
Cover brake	The student lays the ball of the right foot on the brake and applies brake pressure when necessary.	It is important that the student understand this technique from the beginning of the course. It is an integral part of hazard recognition and evasive procedures.
Squeeze	The student applies the amount of pressure needed for smooth acceleration or braking.	The teacher should have the student pretend that an egg is located between the foot and the pedal.
Curl toes	The student ensures a smooth start or stop by curling the toes first and then applying pressure with the ball of the foot.	This technique is psychologically meaningful; it makes the student think of procedure instead of his or her emotions. This technique works well with power-equipped automobiles.
Relax toes	For smooth stopping, the student relaxes the toes one inch before he or she touches the brake and then curls the toes again (toe action must be gentle).	This technique is purely psychological and should help the student who has problems with jerking prior to a full stop. Jerking while stopping is generally the result of incorrect braking. The student should recognize the need to brake sooner.

Action words and phrases for use in driver training (continued)

Concept	Description or activity	Teaching tips
Balanced power	The driver's left hand should be at 10 o'clock and the right hand at 2 o'clock on the steering wheel.	Students should imagine that the steering wheel is the face of a clock. The teacher should introduce balanced power and explain why it is important for building confidence and a good attitude toward safety.
Tight and parallel	This is the desired position of a curb-parked auto–approximately six inches away from and parallel with the curb. The student should steer toward the curb until the center of the front of the hood appears to be on top of the curb. The auto should be at a distance of one and one-half car lengths.	The Vehicle Code requires the parking of an automobile within 18 inches of the curb. The tight-and-parallel concept also helps students develop hill parking skills. On a student's first try, the teacher can help an inexperienced driver by gently steering the auto toward the curb.
Curb pullout	This concept relates to leaving the curb safely.	This phrase helps communications by reducing the number of words in the teacher's instructions.
Curb park	This concept relates to parking safely at the curb.	"Curb park" is easier to say than "park next to the curb."
Parking lane	This lane is used for parking autos parallel to the curb.	This phrase helps to identify the curb lane. It eliminates guessing and helps develop traffic vocabulary.
Travel lane	Any lane in which traffic moves is a travel lane.	This is a good opportunity to identify lane numbers; i.e., Lane 1, next to center divider; Lane 2, next to Lane 1; and so forth. The concept is important for radio signal alerts. In addition, it prevents confusion and develops teacher-pupil rapport.
Blind crosswalk	A blind crosswalk is one in which the view of a crosswalk at the curb is blocked by a parked auto.	The "clue versus hazard concept" should be developed at the appropriate time. Visual limitations (e.g., trucks at markets) should be discussed.
Intersection turns		
Wide arc/narrow arc	Arcs describe the types of intersection or road curves and indicate the amount of steering and brake pressure needed to complete a turn safely.	This activity helps develop judgment and reduce tension. The wide arc requires less braking and steering; the narrow arc requires more braking and steering.
Rolling turn	This is an intersection turn in which stopping does not occur.	This concept is difficult for the inexperienced driver whose judgment skills are undeveloped. Asking whether there is a need to slow or stop expedites the learning process.

Action words and phrases for use in driver training (continued)

Concept	Description or activity	Teaching tips
Brake in/gas out	This is the foot position and procedure to use while performing a rolling turn or completing a road curve.	This activity is used to help the student develop judgment.
Hand-over-hand	This is the steering action used in maneuvers and turns.	The student should be told to start turning with his right hand either at 12 or 2 o'clock; and to release the wheel at either 4 or 8 o'clock (depending on a right or left turn). The student should avoid steering palm up or rotating the wheel from inside the steering wheel.
Center steer	The steering action necessary to return front wheels to straight ahead position (from turns, curves, and maneuvers) is called center steering.	The teacher should encourage hand-over-hand steering when the steering wheel is being unwound. This technique is also necessary to return the steering wheel hand-over-hand in a power equipped automobile.
Creep and peek	This method is used to view cross traffic. The driver should creep forward as far as the parked cars before making a decision to turn or to move across the intersection. If the cross traffic is too close, the driver should stop.	This technique is excellent in helping students develop confidence. This method affords a better view of cross traffic without interrupting traffic. The student should be told to look through the windows of parked cars.
Lane changes		
SMOG	SMOG stands for: S–signal; M–mirror; O–over-shoulder glance; and G–go when safe.	Use this acronym when introducing the lane-change procedure. Have the student develop the procedure while practicing curb park and curb pullouts. After the student understands the procedure, discuss the need for a mirror check prior to signaling.
Glance	A glance is a quick, safe movement of head and eyes (suggested for checking blind spots).	Discourage a long stare to the rear, which often unnerves the inexperienced driver. Have the student explain the difference between a *glance* and a *look*. The student should be sure the road ahead is clear before glancing back.
Blind spot	One blind spot is caused by that portion of the auto between the side and rear windows. The mirror view of adjacent lanes to the side and rear is momentarily blocked by the blind spot.	Students should be instructed to pass a line of parked autos slowly. They should glance in the mirror and identify the parked autos.
Slide or glide	This is the smooth movement of the auto during the lane-change maneuver which requires only slight steering action.	The teacher should encourage students to keep "eyes up" to locate lane position and the teacher can ask, "Is there a need to steer more or less?"

Action words and phrases for use in driver training (continued)

Concept	Description or activity	Teaching tips
Maneuvers		
Crown road	This term refers to the design of a roadway that permits drainage of water from the center of the road (high point) to the gutter (low point).	Roadway design affects auto movement during turns (e.g., turnabout or midblock, U-turn angle park, and parallel park). Discuss the need to compensate for road design in maintaining control of the auto.
Greased lightning	This turn describes rapid hand-over-hand steering action.	Some drivers tend to wind the steering wheel too slowly. The expression, "turn the wheel like greased lightning," identifies the desired action clearly and in a positive manner.
Hood left/hood right	This term suggests the visual checks that should be made in executing a turnabout. On a wide street the auto hood should be positioned to the left of the center (perpendicular to the curb) prior to stopping or unwinding the steering wheel. On a narrow street the auto hood should be positioned right of the center prior to stopping or unwinding the steering wheel.	This technique helps to remove fear of striking the curb. Practice the maneuver on a wide street first. Once the student has mastered the visual and manipulative aspects of the maneuver, proceed to a narrow street. Challenge the student to perform the maneuver safely and expertly in 20 seconds.
Tight and parallel	This is the desired position of the auto when it is parked at the curb. The auto should be approximately six inches away from and even with the curb. The most important step in this maneuver is to make sure that the rear end does not protrude into the lane of traffic, causing a hazard to other drivers.	This, the first step in the hill-parking procedure, should be well-established.
Creep/crawl/slow	These words describe the movement of an auto (e.g., creep like a spider, crawl like a baby).	All students can visualize the actions of spiders and babies. This is the second step of hill parking maneuvers; the teacher should indicate reasons why movement is slow.
Down and in	This phrase describes the hill direction (down) and the front wheel alignment with the curb (in) when the driver parks downhill.	The teacher should avoid using the words "left" or "right" to describe proper front wheel position; they are very confusing, especially when the car is in reverse gear.
Up and out	This phrase describes the hill direction (up) and the front wheel alignment with the curb (out) when the driver parks uphill.	Given these hill parking terms, the student will perform this maneuver successfully and with minimum conflict from the effects of gravity, relationship of auto to curb, or teacher anxiety.
Kiss the curb	This is the gentle movement into the curb when the driver parks on a hill or at an angle.	The teacher should cover the dual-control brake and prepare to apply pressure if the student misjudges the speed of the auto or the distance of the auto from the curb.

Action words and phrases for use in driver training (continued)

Concept	Description or activity	Teaching tips
Perceptual (judgment) training		
Blending into traffic	The responsibility of every driver is to (1) appraise the flow of traffic, potential and immediate hazards, space requirements, and vehicular speeds; and (2) "blend into" the traffic accordingly.	The teacher should discuss blending into traffic in relation to other users of the highway.
Target steering	This term refers to the practice of aiming the auto at a target (point) toward which the auto is to travel.	An auto will travel in the direction in which the eyes are looking. If a student is uneasy, he or she can be helped to relax by acceleration and braking. The student will be enabled to concentrate on two things: the target and the steering action.
Eyes up	This term refers to a driver moving his or her eyes well ahead in the intended direction of the auto.	This concept can be used to enhance the student understanding of the target-steering concept.
Mirror reference habits	This term refers to driving situations in which mirrors are to be checked; i.e., when the driver changes lanes, pulls out from the curb, and parks at the curb. The driver must also check the mirrors before and after turning or stopping and every five or ten seconds while driving.	This concept is a difficult one that needs constant reinforcement. The student's mirror-reference habits should be checked. Effective use of the mirror should help the student recognize the need to blend with traffic and to use hand signals.
Bounce	The student checks the mirror when the teacher uses this term. The student may identify the color of an auto or relate the fact that no auto appears in the mirror.	This word-response activity should be used to help students develop the mirror-reference habit.
Two-second-following-distance rule	Practicing this rule helps to develop judgment as to distance. When another vehicle is being followed, the student should count "one thousand one, one thousand two" after the vehicle ahead passes a stationary object (e.g., tree, bridge, or sign). If the student's auto passes a stationary object prior to "one thousand two," the following distance is too close. If the auto passes after the count, the following distance is satisfactory.	Learning this concept removes the difficulty of estimating the number of car lengths between the driver's auto and the vehicle ahead. The concept should be taught early in the course.
Following-distance rule	This rule calls for a following distance of one car length for every ten miles of speed.	This rule should be followed early in the course. The student's visual ability can be determined by this means. It should be remembered that all judgment and decision-making concepts need reinforcement.

Action words and phrases for use in driver training (continued)

Concept	Description or activity	Teaching tips
Space cushion	This term refers to the area around the auto that is free from potential hazards. The driver must allow time and space to react to sudden, unexpected conflicts.	The teacher should instruct each student to avoid driving in another driver's blind spot. The student should deal with this situation as a potential hazard.
Time and space	This term refers to the positioning of an auto so that enough time and space are allowed to avoid a potential hazard.	The time and space concept enhances the two-second-eye-movement concept. Since time is required to react, space is required to escape a hazardous situation.
Two-second-eye-movement rule	The student should move his or her eyes every two seconds—ahead, to the side, and to the rear.	When students are nervous, they tend to fix their eyes on some object or spot. Early in the course, students should be encouraged to move their eyes frequently.
Decision making		
Is there a need?	This question is used to transfer responsibility to the student. The student will decide whether there is a need to slow down or speed up; a need to turn more or less; a need to move closer or farther from the center line; and so forth.	Using this question helps to remove the anxiety created by negative remarks made by the teacher; e.g., "Don't!" "Can't!" "Oh no!" It helps to build confidence and develops teacher-pupil rapport.
Teachable moment	Positive and negative actions of other highway users can serve as positive and negative illustrations.	This method should be used to stimulate the student's interest in the driving task. The student should begin to recognize a need for traffic safety. The teacher should be able to learn much about each student's personality and attitude.
Defensive driving	The term "defensive driving" means watching out for the "other person." The term expresses a warning: Drive as if everybody else is crazy and is out to get you.	The teacher should impress on each student the need for traffic safety. The student can identify with this familiar term.
Clue versus hazards	Upon hearing the term clue, the student covers the brake and verbally identifies the potential or immediate hazard that will be encountered.	This exercise is an aid to the early recognition of hazards. The teacher should begin this instruction early, since judgment and decision-making skills require much reinforcement. By the end of the instruction, the student will cover the brake without prompting from the teacher. Student observers should be used in the development of this method.
IPDE	The elements of the acronym IPDE are: Identify the object as a hazard. Predict what might happen. Decide what to do. Execute procedure to avoid the hazard.	This technique develops perceptual and decision-making skills. Students should describe traffic situations orally to acquire this concept.

Action words and phrases for use in driver training (continued)

Concept	Description or activity	Teaching tips
What do your eyes see?	The student orally describes a traffic scene in front, to the sides, and to the rear, including vehicles, pedestrians, roadway hazards, signs, signals, and other clues that may help in negotiating in traffic.	This exercise helps students relax if they are uptight. Talking requires effort and helps to take the student's mind away from himself or herself. It also provides excellent feedback for evaluation of eye movement.
House to house	The student moves his or her eyes from side to side to include houses and driveways. More time and space are thus provided so that the driver can react to hazards.	The student should develop this concept early in the course. It is part of eye-movement development but is also an essential procedure for recognition of hazards.
Taillight rule	The student covers the brake when taillights appear ahead or to the side. The student should ask himself or herself why the taillights appeared. Then, according to each situation, brake pressure should be applied or, as taillights go off, the foot should be returned to the accelerator.	This rule helps the student to develop perceptual and decision-making skills. It may save the life of the student as a pedestrian some day while walking in a crosswalk. If taillights appear far ahead, the student driver should be encouraged to flow with the traffic but be prepared for evasive action if needed.
Sweep intersection	The driver should glance *left-right-left* when making an intersection approach. The eye movement should be like the movement of a broom as it sweeps.	Inexperienced drivers underestimate hazards in and around intersections. The need for such eye movement should be taught early.
Old versus new light	When approaching a green light, the driver should decide if the light is new (saw it change to green). If the driver did not see the light change to green, he or she should cover the brake (according to auto speed and distance from the limit line). If the light changes to amber, the student must decide to stop smoothly at the limit line or to proceed through the intersection.	This is a very difficult but extremely important concept. The instructor should teach the old/new light recognition technique and should cover the dual-control brake if the light is old. The student should also learn hazardous intersection clues, such as cross-traffic auto volume and speeds, pedestrian movement, intersection width, and intersection visual obstructions. The teacher should cover the dual-control brake if an amber light appears and should be ready to assist the student. Some teachers use the pedestrian light to identify the old/new light concept: green walk (light is new); flashing red–don't walk (old light); solid red–don't walk (old light; signal will change to amber quickly).

APPENDIX C

CALIFORNIA LAWS AND REGULATIONS THAT AFFECT TRAFFIC SAFETY EDUCATION

Education Code

53. Any reference in this code to automobile driver training shall be deemed to refer to the laboratory phase of driver education described by Section 18252.4.

894.5. Each pregnant pupil enrolled in any program for physically handicapped pupils maintained by a county superintendent of schools, whose only condition for being enrolled in such a program is her pregnancy, shall be allowed to enroll in automobile driver training provided by the school district of residence; however, the school district shall receive, for the driver training instruction of the pupil, only the driver training allowances authorized by Section 18251 and shall not receive, for the driver training instruction of the pupil, driver training allowances authorized by Section 17305.7.

1018. The governing board of a school district maintaining a high school or high schools, a county superintendent of schools, the California Youth Authority, and the State Department of Education who maintain courses in driver education and automobile driver training may insure against any liability arising out of the use of motor vehicles in connection with such courses.

1018.5. The governing board of any school district maintaining a course of automobile driver training shall advise the parents or guardians or persons having custody of pupils of the district participating in automobile driver training courses under the jurisdiction of, or sponsored or controlled by, the district, who have signed the statement required by Section 12650 of the Vehicle Code or an application for a driver's license under Section 17701 of the Vehicle Code, of each of the following:

(a) Any civil liability of the minor which will be imposed on the parent, guardian, or other person by reason of such minor operating a motor vehicle.

(b) The insurance coverage carried by the school district, with respect to the use of motor vehicles in connection with such courses, specifically including any limitations of such coverage which limit such coverage to an amount less than the liability imposed on the parent, guardian, or other person, or which limit the nature of such coverage to exclude any activity or situation included within the liability so imposed.

1085. The governing board of a school district maintaining a high school or high schools, a county superintendent of schools, and the California Youth Authority and State Department of Education in providing programs of high school education, may prescribe regulations determining who can profit by and who shall receive instruction in automobile driver training; provided, however, that no pupil shall be permitted to enroll in automobile driver training unless such pupil is presently enrolled in a course of instruction in automobile driver education, or has satisfactorily completed such course. The regulations shall be subject to such standards for driver education and driver training as may be prescribed by the State Board of Education. Where driver training is provided, such course of instruction shall be given in one or more of the grades 9, 10, 11, or 12. Pupils shall be at least 15 years and six months of age at the time of completion of a driver training course.

5022. Whenever the governing board of a school district offering automobile driver training determines that such training cannot be conducted effectively wholly within the district's boundaries, it may cause the training to be conducted without the boundaries of the district.

5208. The governing board of any school district maintaining a high school or high schools, a county superintendent of schools, the California Youth Authority, and the State Department of Education authorized to maintain automobile driver training classes may maintain such classes on Saturday, and during summer, Christmas, and Easter vacations when schools are not in session.

5714. (a) Whenever the governing board of a school district maintaining an adult school or classes for adults is unable to maintain the school or classes in the district because of its inability to secure a teacher or teachers, or because of lack of facilities, the board may, with the approval of the county superintendent of schools and the Superintendent of Public Instruction, maintain the school or classes of the district elsewhere than within the district or contract for instruction of the students in such school or classes with the governing board of another district.

(b) Notwithstanding the provisions of subdivision (a) of this section, whenever the governing board of a school district offering automobile driver training in an adult school or classes for adults determines that such training cannot be conducted effectively wholly within the district's boundaries, it may cause the training to be conducted outside the boundaries of the district.

8503. The adopted course of study shall provide instruction at the appropriate elementary and secondary grade levels and subject areas in personal and public safety and accident prevention; fire prevention; the protection and conservation of resources, including the necessity for the protection of our environment; and health, including the effects of alcohol, narcotics, drugs, and tobacco upon the human body.

8571. The adopted course of study for grades 7 through 12 shall offer courses in the following areas of study:

(a) English, including knowledge of and appreciation for literature, language, and composition, and the skills of reading, listening, and speaking.

(b) Social sciences, drawing upon the disciplines of anthropology, economics, geography, history, political science, psychology, and sociology, designed to fit the maturity of the pupils. Instruction shall provide a foundation for understanding the history, resources, development, and government of California and the United States of America; the development of the American economic system including the role of the entrepreneur and labor; man's relations to his human and natural environment; eastern and western cultures and civilizations; and contemporary issues.

(c) Foreign language or languages, beginning not later than grade 7, designed to develop a facility for understanding, speaking, reading, and writing the particular language.

(d) Physical education, with emphasis given to such physical activities as may be conducive to health and to vigor of body and mind.

(e) Science, including the physical and biological aspects, with emphasis on basic concepts, theories, and processes of scientific investigation and on man's place in ecological systems, and with appropriate applications of the interrelation and interdependence of the sciences.

(f) Mathematics, including instruction designed to develop mathematical understandings, operational skills, and insight into problem-solving procedures.

(g) Fine arts, including art, music, or drama, with emphasis upon development of aesthetic appreciation and the skills of creative expression.

(h) Applied arts, including instruction in the areas of consumer and homemaking education, industrial arts, general business education, or general agriculture.

(i) Vocational-technical education designed and conducted for the purpose of preparing youth for gainful employment in such occupations and in such numbers as appropriate to the manpower needs of the state and the community served and relevant to the career desires and needs of the students.

(j) Automobile driver education, designed to develop a knowledge of the provisions of the Vehicle Code and other laws of this state relating to the operation of motor vehicles, a proper acceptance of personal responsibility in traffic, a true appreciation of the causes, seriousness and consequences of traffic accidents, and to develop the knowledge and attitudes necessary for the safe operation of motor vehicles. A course in automobile driver education shall include education in the safe operation of motorcycles.

(k) Such other studies as may be prescribed by the governing board.

8572. All pupils, except pupils excused, shall be required to attend upon the courses of physical education for a total period of time of not less than 400 minutes each 10 schooldays. Any pupil may be excused from physical education classes during one of grades 10, 11, or 12 for not to exceed 24 clock hours in order to participate in automobile driver training. Such pupil who is excused from physical education classes to enroll in driver training shall attend upon a minimum of 7,000 minutes of physical education instruction during such school year.

13525. The governing board of each school district shall pay to each person employed in a day school of the district for full time in a position requiring certification qualifications and serving under other than an emergency or provisional credential an annual salary of not less than six thousand dollars ($6,000).

The governing board of each school district shall pay to each person employed for less than full time in a position requiring certification qualifications and serving under other than an emergency or provisional credential an annual salary of not less than an amount which bears the same ratio to six thousand dollars ($6,000) as the time required of the person bears to the time required of a person employed full time.

"Full time" means not less than the minimum schoolday for each day the schools of the district are maintained during the school year.

The provisions of this section shall not be construed as applying to substitute employees of a school district or to persons employed exclusively to teach driver training who possess only a standard designated subjects teaching credential in public safety and accident prevention.

15352.5. Section 15352 shall not apply to trailer coaches used for classrooms or laboratories if such trailer coaches conform to the requirements of Part 2 (commencing with Section 18000) of Division 13 of the Health and Safety Code, and the rules and regulations promulgated thereunder, concerning mobilehomes and are readily movable, not expanded or fitted together with other sections to form one unit greater than 16 feet in width, not placed upon fixed foundations, and used for special educational purposes and are used by not more than 12 students at a time, except that such trailer coaches may be used by not more than 20 students at a time for driver training purposes.

The purchase and use of such trailer coaches shall be at all times under the direct supervision of the county superintendent of schools.

15955.1. Contracts for the rental, lease, or lease-purchase of motor vehicles, other than schoolbuses, equipment or systems to be furnished, built or installed for the district may be made for a period not to exceed five years, such contracts to be renewable at the option of the district for an additional period not to exceed five years; provided, that rate of the renewal contract is not greater than the rate set in the existing contract. For the sole purpose of identifying that portion of each annual rental or lease payment which may represent tax exempt reimbursement to the vendor, lessor or their assignees, bidders may include in their bids abstractions of their quotations indicating the pricing structure used to compute the annual rental or lease payments.

17305. (a) There is appropriated annually from the Driver Training Penalty Assessment Fund to the General Fund in the State Treasury and from the General Fund to the department a sum as necessary to establish and maintain a unit for driver instruction within the Department of Education as set forth in Section 18251.4.

(b) In addition, subject to the provisions of Section 17305.5, there shall be provided from the General Fund to the State School Fund in each fiscal year such sum as the Superintendent of Public Instruction shall certify as necessary to reimburse school districts, county superintendents of schools, the California Youth Authority and the State Department of Education for the actual cost of instructing pupils in the operation of motor vehicles.

The amount shall not exceed sixty dollars ($60) per pupil instructed in the laboratory phase of driver education in accordance with the rules and regulations of the State Board of Education.

(c) Subject to the provisions of Section 17305.5, there shall also be provided the sum the Superintendent of Public Instruction shall certify as necessary to reimburse school districts, county superintendents of schools, the California Youth Authority and the State Department of Education for the actual cost of replacing vehicles and simulators used exclusively in the laboratory phase of driver education programs, but the amount shall not exceed three-fourths of that part of the actual cost of instructing pupils in the laboratory phase of driver education during the preceding fiscal year which was: (1) in excess of sixty dollars ($60) per pupil instructed, and (2) expended by the district, the county superintendent of schools, the California Youth Authority and the State Department of Education in replacing such vehicles and simulators. Reimbursement for vehicles shall be computed for only that portion of the total mileage used exclusively in the laboratory phase of driver education programs.

(d) For purposes of computing reimbursement, whenever a school district, a county superintendent of schools, the California Youth Authority, or the State Department of Education replaces a driver training vehicle or simulator purchased by the district with a vehicle or simulator that is a gift or loan, the purchase price of such new or acquired equipment shall be deemed to be the market value of the vehicle or simulator acquired through a gift or loan.

A simulator is any device approved by the Department of Education to be used in classrooms for purposes of laboratory instruction under simulated driving conditions.

17305.5. The amounts provided under Section 17305 for any fiscal year shall not exceed an amount equal to the sum of the moneys credited to the Driver Training Penalty Assessment Fund in the State Treasury during the preceding fiscal year and the amount by which the deposits in the Driver Training Penalty Assessment Fund on or after September 15, 1961, have exceeded the amounts required to reimburse the General Fund on account of transfers made after such date.

17305.7. The Superintendent of Public Instruction shall also allow as otherwise provided in Section 17305 for the driver training instruction necessary to be safely tested for a driver's license at the Department of Motor Vehicles, those physically handicapped pupils, mentally retarded pupils who come within the provisions of Section 6902, and educationally handicapped pupils who are in attendance in a public secondary school in California which offers such qualified instruction, and who may qualify for a driver's license, or other license, issued by the California Department of Motor Vehicles, a total allowance not to exceed two hundred dollars ($200) including the reimbursement provisions set forth in Section 18251 to each school district and county superintendent of schools. All driver training for pupils herein described must be provided by qualified teachers, as defined by Sections 18252.1 and 18252.2. The provisions of this section may not be applied if reimbursement allowable under Sections 18251 to 18255, inclusive, is sufficient to meet the total cost of instruction as herein described.

It is the intent of the Legislature that driver training instruction be provided pupils as a part of the high school curriculum, and the Legislature finds and declares that exceptional children are entitled to the benefit of such instruction so far as their individual capabilities permit, understanding that those pupils herein described often require individualized and amplified driver training instruction in order to succeed in becoming safe operators of motor vehicles. Since without a means of self-transportation much of the overall program of education and rehabilitation provided for by the Legislature would be of little avail to the person without the mobility required to become a productive and well-adjusted member of society, the Legislature further declares that it is incumbent upon the state to share in the cost of providing a most needed and desirable program of driver training instruction for these exceptional children.

17405. The Superintendent of Public Instruction shall on or before December 10th of each year apportion:

(a) To each elementary, high school, and community college district, and county school service fund the total of amounts allowed to them under Sections 18051 to 18059, inclusive, and Sections 18301 to 18307, inclusive, and

(b) To each school district maintaining a high school or high schools, each county superintendent of schools, the California Youth Authority and the State Department of Education the total of amounts allowed to them under Sections 18251 to 18255, inclusive.

This apportionment shall be called the special purpose apportionment.

18251. The Superintendent of Public Instruction shall allow to each school district maintaining a high school or high schools, county superintendent of schools, the California Youth Authority and the State Department of Education an amount equal to the actual cost, but not in excess of sixty dollars ($60) per pupil instructed in the laboratory phase of driver education during the preceding fiscal year in accordance with Sections 18251.2 and 18252 and with regulations set forth by the State Board of Education to such districts, county superintendents of schools, the California Youth Authority and the State Department of Education for instructing pupils in the laboratory phase of driver education.

18251.1. The governing board of each school district maintaining a high school or high schools, each county superintendent of schools, the California Youth Authority, and the State Department of Education shall report annually to the county superintendent of schools and to the Superintendent of Public Instruction on forms provided by the Superintendent of Public Instruction, the cost of instructing such pupils, and such other information as may be required for the computation of the excess cost incurred in the instruction of the pupils in automobile driver training.

18251.2. Allowances by the Superintendent of Public Instruction shall be made only for driver training classes maintained in accordance with the rules and regulations as set forth by the State Board of Education.

Driver training shall be available without tuition to all eligible students commencing on July 1, 1969. The governing board of a district maintaining a high school or high schools, the county superintendent of schools, the California Youth Authority, and the State Department of Education may make driver training available during school hours, or at other times, or any combination thereof.

18251.3. The Superintendent of Public Instruction shall determine the amount of excess cost incurred by each school district, each county superintendent of schools, the California Youth Authority, and the State Department of Education during the preceding fiscal year for the establishment and maintenance of automobile driver training for pupils enrolled in the schools of the district, the county superintendent of schools, the California Youth Authority, and the State Department of Education in accordance with such regulations as he may prescribe.

"Excess cost," as used in this section, includes the total current expenditures incurred for instructing pupils in automobile driver training in special classes, including, but not limited to, automobile replacement, insurance, upkeep and maintenance of automobiles used in such training.

"Special classes," as used in this section, includes classes providing automobile driver training for pupils who may be excused, for the purpose of taking instruction in automobile driver training.

18251.4. The Superintendent of Public Instruction may promote and direct the establishment and maintenance of courses of instruction in automobile driver education and driver training in the public schools. For this purpose, he may employ such professional and other personnel as are necessary to give full effect to this article. All necessary costs and expenses incurred for purposes of this section shall be provided for from such funds as may be appropriated by the Legislature from the Driver Training Penalty Assessment Fund.

18252. No allowance shall be made under this article (commencing at Section 18251) for the instruction of pupils in automobile driver training unless the school district, the county superintendent of schools, the California Youth Authority, and the State Department of Education has complied with the rules and regulations of the State Board of Education governing the establishment, conduct, and scope of automobile driver education and driver training, except that such rules and regulations shall not relate in any way to teacher certification or licensing.

18252.1. In applying for state reimbursement for driver training expenses incurred in the school year 1968-69 and thereafter, school districts, county superintendents of schools, the California Youth Authority, and the State Department of Education shall certify to having met the requirements set forth in this article and, in addition, shall certify that all teachers used in the driver education or driver training programs are qualified instructors therein, except that such certification shall not relate in any way to teacher certification or licensing.

18252.2 A qualified instructor is one who has passed an approved driver's instruction examination and holds a designated subjects credential or who holds a valid prior credential authorizing instruction in automobile driver education and driver training.

The Department of Motor Vehicles shall notify the State Department of Education immediately upon suspension or revocation of a qualified instructor's driver's license or upon placing a qualified instructor on probation to the Department of Motor Vehicles as a negligent operator. The Department of Education and the Department of Motor Vehicles shall jointly determine the details regarding procedures for notification. No reimbursements shall be provided to a school district, a county superintendent of schools, the California Youth Authority, or the State Department of Education for students taught by an instructor while his driver's license is suspended or revoked, or while he is on probation to the Department of Motor Vehicles as a negligent operator, or while he is presumed pursuant to Section 12810 of the Vehicle Code to be a negligent operator, following notification by the State Department of Education to the school district, the county superintendent of schools, or the California Youth Authority, as the case may be, of such action.

18252.3. A course of instruction in automobile driver education shall:

(a) Be of at least 2½ semester periods and shall be taught by a qualified instructor;

(b) Provide the opportunity for students to take driver education within the regular schoolday, and within the regular academic year, as defined in Section 5554. Additional classes may be offered at the discretion of the local school district governing board, the county superintendent of schools, California Youth Authority, and the State Department of Education, to accommodate those who have failed or those who cannot otherwise enroll in the regular schoolday program. For purposes of this section, the regular schoolday shall be that time during which classes are maintained in the courses of instruction provided for in Division 7 (commencing with Section 7501) of this code; and

(c) Be completed by the student within the academic year or summer session in which it was begun.

18252.4. A course of instruction in the laboratory phase of driver education shall include, for each student enrolled in the class, instruction under one of the following plans:

(a) Plan One. A minimum of 12 hours allocated as follows:

(1) A minimum of six hours of on-street behind-the-wheel practice driving instruction in a dual-control automobile with a qualified instructor.

(2) A minimum of six hours in a dual-control automobile with a qualified instructor for the purposes of observation. Practice driving on an off-street multiple-car driving range approved by the department under the supervision of a qualified instructor may be substituted for all or part of the observation time.

(b) Plan Two. A minimum of 24 hours allocated as follows:

(1) Three hours of on-street behind-the-wheel practice driving instruction in a dual-control automobile with a qualified instructor.

(2) Six hours in a dual-control automobile with a qualified instructor for the purposes of observation. Practice driving on an off-street multiple-car driving range approved by the department under the supervision of a qualified instructor may be substituted for all or part of the observation time.

(3) Twelve hours of instruction by a qualified instructor in a driving simulator approved by the department.

(4) At least three additional hours of instruction specified in one or more of paragraphs 1 through 3 of this subdivision.

(c) Plan Three. A minimum of 24 hours allocated as follows:

(1) Three hours of on-street behind-the-wheel practice driving instruction in a dual-control automobile with a qualified instructor.

(2) Six hours in a dual-control automobile with a qualified instructor for the purpose of observation.

(3) Twelve hours of instruction by a qualified instructor on an off-street multiple-car driving range.

(4) At least three additional hours of instruction specified in one or more of paragraphs 1 through 3 of this subdivision.

(d) Plan Four. A minimum of 24 hours allocated as follows:

(1) Two hours of on-street behind-the-wheel practice driving instruction in a dual-control automobile with a qualified instructor.

(2) Four hours in a dual-control automobile with a qualified instructor for the purpose of observation.

(3) Eighteen hours of instruction by a qualified instructor in a driving simulator approved by the department and on an off-street multiple-car driving range. The governing board of the district shall establish the proportion of time to be utilized in simulators and on the off-street multiple-car driving range.

For purposes of this section, one hour means 60 minutes including passing time.

Any deviation from the standard use of a simulator or off-street multiple-car driving range, or both, shall have prior approval by the State Department of Education before the school district, county superintendent of schools, the California Youth Authority, or the State Department of Education can be reimbursed for the students trained.

Note: Stats. 1973, Ch. 518, contains the following provisions:

Sec. 2. The Department of Education shall conduct a pilot program in which 12 school districts are exempted from the time requirements specified in Section 18252.4 of the Education Code for the laboratory phase of driver education and are required to observe the time requirements set forth in this act.

The pilot program shall be directed to determining the feasibility and cost effectiveness of modifying the time requirements set forth in Section 18252.4.

Sec. 3. (a) The Department of Education shall permit 12 school districts, upon application, to observe the following schedule for the laboratory phase of driver education:

	Minimum number of hours per individual pupil	Minimum average number of hours per total of pupils trained
Plan I		
Behind-the-wheel practice . .	3	6
Observation	6	6
Plan II		
Behind-the-wheel practice . .	2	3
Observation	6	6
Simulation	12	12
Plan III		
Behind-the-wheel practice . .	2	3
Observation	6	6
Multiple-car driving range . . .	12	12
Plan IV		
Behind-the-wheel practice . .	2	2
Observation	6	6
Simulation and multiple-car driving range	8	16

(b) For purposes of subdivision (a):

(1) "Behind-the-wheel practice" means onstreet behind-the-wheel practice driving instruction in a dual-control automobile with a qualified instructor.

(2) "Observation" means time in a dual-control automobile with a qualified instructor for the purposes of observation. Practice driving on an offstreet multiple-car driving range approved by the department under the supervision of a qualified instructor may be substituted for all or part of the observation time.

(3) "Simulation" means instruction by a qualified instructor in a driving simulator approved by the department.

(4) "Multiple-car driving range" means instruction by a qualified instructor on an offstreet multiple-car driving range.

(c) For purposes of this section, one hour means 60 minutes including passing time.

(d) Any deviation from the standard use of a simulator or offstreet multiple-car driving range, or both, shall have prior approval by the Department of Education before the school district can be reimbursed for the students trained.

Sec. 4. The Department of Education shall report to the Legislature on or before June 30, 1976, regarding the pilot program required by this act, and shall make recommendations to the Legislature regarding the possible modification of the time requirements specified in Section 18252.4 of the Education Code.

18252.6. The governing board of any school district employing persons exclusively to teach driver training shall adopt and make public a salary schedule setting the daily or pay period rate or rates for such persons. Salary amounts and criteria for advancement contained in any salary schedule adopted pursuant to this section shall be established at the sole discretion of the governing board.

18253. The Superintendent of Public Instruction shall make an additional allowance to each school district maintaining a high school or high schools, each county superintendent of schools, the California Youth Authority, and the State Department of Education as reimbursement for the actual expense of replacing vehicles used exclusively in automobile driver training programs and of replacing simulators used in such programs, but the amount shall not exceed three-fourths of that part of the actual cost of instructing pupils in automobile driver training during the preceding fiscal year which was: (1) in excess of fifty dollars ($50) per pupil instructed, and (2) expended by the district, the county superintendent of schools, California Youth Authority, or State Department of Education replacing such vehicles and simulators. Reimbursement for vehicles shall be computed for only that portion of the total mileage used exclusively in driver training programs.

For purposes of computing reimbursement, whenever a school district, a county superintendent of schools, the California Youth Authority, or the State Department of Education replaces a driver training vehicle or simulator purchased by the district, the county superintendent of schools, California Youth Authority or State Department of Education with a vehicle or simulator that is a gift or loan, the purchase price of such new or acquired equipment shall be deemed to be the market value of the vehicle or simulator acquired through a gift or loan.

18253.5. The Department of Education may grant waivers of automobile driver training education provisions of the Education Code for the purpose of establishing experimental driver education programs directed toward improving cost effectiveness in the reduction of traffic crashes. Waivers under this section shall not increase program reimbursements authorized pursuant to Sections 17305 and 17305.7.

18254. The allowances made to the several school districts and county superintendents of schools, and to the California Youth Authority and State Department of Education under Sections 18251 and 18253 shall, when the Superintendent of Public Instruction determines that the funds credited to the Driver Training Penalty Assessment Fund during the preceding fiscal year will be insufficient to provide the full amounts otherwise allowable, be proportionately reduced.

18255. The expressed purpose of the Legislature is that highway accidents can and must be reduced through the education and training of drivers prior to licensing, and that this instruction properly belongs in the high school curriculum on a basis of having comparable standards of instruction, quality, teacher-pupil ratio and class scheduling in driver education as in other courses in the regular academic program. Only through a high quality program of driver instruction can the greatest potential in traffic accident prevention be realized. Further, the state has a responsibility to share in the reasonable costs of providing such courses.

18256. Notwithstanding any other provision of law, the governing board of any school district maintaining secondary schools, may, subject to Sections 18256 to 18262, inclusive, enter into contracts with approved private driver training schools to provide to any or all of the eligible enrolled students of the district, the automobile driver training as provided pursuant to Section 18252.4. No such contract shall be valid unless approved by the Superintendent of Public Instruction. The driver training provided under contract by an approved private driver training school shall be under the exclusive control and management of the governing board of the school district and shall comply with all rules and regulations of the State Board of Education relating to driver training offered by the public schools except that a driver training instructor of the approved private driver training school shall not be required to possess any teaching credential or certification document of any kind except as required by the Driving School Department of the Department of Motor Vehicles. Nothing in this section shall prohibit the governing board from entering into contracts with more than one approved private driver training school and apportioning students among such schools.

18257. As used in this article, an "approved private driver training school" is one which:

(a) Has a valid license issued by the Department of Motor Vehicles pursuant to Chapter 1 (commencing with Section 11100) of Division 5 of the Vehicle Code.

(b) Maintains at all times limits of liability insurance established by the State Superintendent of Public Instruction equal to that required of the contracting school district.

(c) Provides, for such automobile driving instruction, dual-control automobiles approved by the Department of Motor Vehicles.

(d) Meets such other requirements as shall be established by the Superintendent of Public Instruction.

18258. Any contract entered into and approved in the manner provided pursuant to Section 18256 shall entitle the approved driver training school to payment by the school district of the sum of not more than the amount reimbursable to the school district as "excess cost" provided pursuant to Sections 18251 and 18251.3. In the event that a student who has commenced the driver training for which the district has contracted pursuant to Section 18256 and the student does not complete the driver training for any reason, the approved private driver training school shall be paid the amount in "excess cost," if any, received by the school district for such student.

18259. Upon presentment to the governing board by the approved private driver training school written verification of the name, school, dates, and times of each automobile driver training instruction lesson and such other information required by the Superintendent of Public Instruction, the approved private driver training school shall be paid the contract amount as determined pursuant to Section 18258.

18260. The governing board of any school district shall be entitled to reimbursement for driver training provided by approved private driver training schools pursuant to this article in the amount authorized pursuant to Section 18251, upon certifying to the Superintendent of Public Instruction the number of pupils for whom automobile driver training instruction lessons were provided pursuant to Sections 18256 to 18262, inclusive.

18261. Notwithstanding the provisions of Section 18252.2, a regular employee of a contracting approved private driver training school shall be a qualified instructor for automobile driver training provided that:

(a) He holds a valid driver instructor license issued by the Department of Motor Vehicles, and

(b) He has completed the driver instructor course required by the Department of Motor Vehicles.

18262. No approved private driver training school may enter into a contract pursuant to this article unless it has, at the time of entering into the contract, been operating in the State of California for at least 24 consecutive months.

A contracting approved private driver training school shall provide instruction pursuant to one of the plans authorized pursuant to Section 18252.4.

23612. The trustees may insure the owner of any motor vehicle used in driver training and employees of state colleges and the students instructed by them against any liability, other than a liability which may be insured against under Division 4 (commencing with Section 3201) of the Labor Code, for injuries or damages resulting from the negligent operation of any motor vehicle while such motor vehicle is operated by the employees or by students in connection with the giving of instruction in the operation of motor vehicles within the curricula of the state college.

25655. The State Department of Education, in connection with the California School for the Deaf which maintains automobile driver training courses, may purchase from available funds public liability, property damage, collision, fire, theft, and comprehensive automobile insurance for motor vehicles, whether owned by private parties or such school for the deaf, used in connection with such courses.

California Administrative Code
Title 5, Education

10020. General Provisions. This article governs the establishment, conduct, and scope of, and establishes standards for, automobile driver education in high schools, except evening high schools.

"Automobile driver education" is classroom instruction described in Education Code Section 8571 (i).

(a) A course in automobile driver education shall include instruction in the following areas:

(1) Driving is your responsibility.
(2) Major causes of accidents.
(3) The driver.
(4) Natural forces affecting driving.
(5) Signs, signals, and highway markings, and highway design features which require understanding for safe operation of motor vehicles.
(6) California Vehicle Code, rules of the road, and other state laws and local motor vehicle laws and ordinances.
(7) Differences in characteristics of urban and rural driving including safe use of modern expressways.
(8) Critical vehicle systems and subsystems requiring preventive maintenance.
(9) Pedestrian safety.
(10) Effects of alcohol and drugs.
(11) Motorcycle safety.

(b) If an allowance will be claimed for the laboratory phase of driver education based upon the driver education course, the course shall meet the requirements of Section 10044(a) and Education Code Sections 18252.1, 18252.2 and 18252.3.

(c) If an allowance described in (b) will not be claimed, the course may be taught by an instructor who holds a credential authorizing the holder to teach in all grades, 10, 11, and 12. In all other respects, the course shall meet the requirements of this article and of Education Code Section 18252.3.

10040. General Provisions. This article governs the establishment, conduct, and scope of, and establishes standards for the laboratory phase of driver education in high schools, except evening high schools.

The laboratory phase of driver education is instruction in driving motor vehicles through the actual use of automobile simulators, and multiple-car off-street driving ranges, for the purpose of developing the knowledge, attitude, habits, and skills necessary for the safe operation of motor vehicles, with additional emphasis in:

(a) The vehicle, highway and community features:

(1) That aid the driver in avoiding crashes

(2) That protect him and his passengers in crashes

(3) That maximize the salvage of the injured.

(b) Basic and advanced driving techniques including techniques for handling emergencies.

10041. Standards of Pupil Eligibility. (a) Only those pupils may receive instruction in the laboratory-phase of driver education who hold a valid student license issued by school authorities, meet the age and other requirements of Education Code Section 1085, and come within regulations adopted by the governing board under that section, and meet physical and mental qualifications as specified in Vehicle Code Section 12804. Screening examinations shall include a test of the hearing and eyesight of the applicant and such other matters as may be necessary to determine the applicant's mental and physical fitness to operate a motor vehicle upon the highways and whether any ground exists for refusal of the student license under the Vehicle Code. Screening examinations shall be subject to the provisions of Sections 590, 591, 592, and 593 of this title and of Section 11823 of the Education Code.

(b) Districts shall include in the regulations adopted by the local governing board provisions to determine who can profit by and who shall receive instruction in the laboratory-phase of driver education.

(c) In addition, all districts shall include in the regulations a provision that the student and his parent or guardian shall signify that the student will utilize his training through parental/student activities directed to licensing within six months after the course shall have been completed.

(d) Students who have satisfactorily completed the laboratory-phase of driver education and who repeat the course shall not be included for excess cost reimbursement pursuant to Education Code Section 17305(b).

10042. Standards for Automobiles Used. (a) **Equipment**. An automobile used for the laboratory phase of driver education shall at all times have the following equipment:

(1) Dual controls of a type approved by the California State Department of Education. American Automobile Association dual controls and those of similar specifications are approved.

(2) Seat belts that conform to the requirements of Motor Vehicle Code Section 27304.

(3) Outside rear-view mirrors for the driver's side and for the righthand front seat.

(4) Heaters and ventilators as needed for the protection of health of the students and teachers.

(5) Tire chains, if the automobile is being used under conditions where the Department of Public Works requires them or where local police or the Highway Patrol recommend them.

(6) First-aid kits, safety flares, and either reflectors or a flashing light warning system, all maintained in good condition, and readily accessible.

(7) Appropriate tools and minor replacements for emergency repairs.

(8) A spare tire.

(b) **Identification.** Some means shall be used to identify the automobile with the laboratory phase of driver education. The name of a lender of an automobile may be placed, on a single line only and only once, on each side and the rear of the automobile in letters not exceeding one and one-half (1½) inches in height.

(c) **Maintenance.** An automobile used in the laboratory phase of driver education shall receive protective maintenance and repairs in accordance with recommendations of the manufacturer. Maintenance records shall be kept for it.

(d) **Safety Check.** A complete safety check, as recommended by the manufacturer, shall be completed on each automobile used in the laboratory phase of driver education at least once each semester by a competent and qualified mechanic to insure it is in a safe operating condition.

(e) **Replacement.** An automobile used in the laboratory phase of driver education shall be replaced when it cannot be maintained to meet maximum safety standards.

(f) **Restricted Use.** A loaned or leased automobile used in the laboratory phase of driver education shall be used only for the laboratory phase of driver education.

The driver education identification of a district owned automobile shall be removed or covered whenever the automobile is used for other purposes. The cost of such other use is not reimbursable.

10043. Accident Report Forms. An accident report form approved by the State Department of Education shall be in the driver education automobile at all times. In case of an accident, the instructor shall complete the form without delay, regardless of damage or injury, and file it with the principal. The principal shall forward a duplicate copy of the report to the Health and Safety Unit, State Department of Education, Driver Instruction, 721 Capitol Mall, Sacramento, California 95814. This report is in addition to, and not in lieu of, reports otherwise required by law.

The report form entitled *Traffic Collision Report, 555 (Rev. 11-71),* California Highway Patrol, is approved for the purposes of this section.

10044. Standards for Driver Education and Laboratory Phase of Driver Education. (a) The classroom and laboratory phase of driver education shall satisfy the following:

(1) Courses shall be offered at that grade level or age level where most pupils are closely approaching or have recently reached the licensing age.

(2) Courses shall be provided at such times that every pupil has the opportunity to enroll.

(3) The course shall include a minimum of 30 clock hours of classroom instruction, exclusive of passing time. The laboratory phase of driver education shall be in accordance with Education Code Section 18252.4. The duration of the course should be one full semester, but in no event shall be conducted for a period less than six calendar weeks.

(4) Simulators or ranges shall not be used unless approved by the State Department of Education.

(5) No pupil shall receive more than two hours of classroom driver education nor more than two hours of

laboratory phase of driver education (including observation time) during any 24-hour period.

(6) Satisfactory completion of driver education and/or the laboratory phase of driver education shall be recorded in each pupil's permanent record file, and the amount of credit granted toward graduation shall be in accordance with Section 1600.

(b) If an allowance will not be claimed, the course may be taught by an instructor who holds a credential authorizing the holder to teach in all grades 10, 11, and 12. In all other respects, the course shall meet the requirements of this article and of Education Code Sections 18252, 18252.3, 18252.4 and 18255.

APPENDIX D

FORMS FOR USE IN DRIVER EDUCATION

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Agreement for Use of Driver Education Vehicles

Dealer Responsibilities

The dealer whose signature appears below certifies the following:

1. The vehicle is loaned for the period or mileage specified in the "Acknowledgment of Assignment" or item 5 of "School Responsibilities."
2. The user agency will be provided with a new vehicle prior to the beginning of the agency's traffic safety program (carryover models will be provided if necessary).
3. The dealer will make all necessary repairs and will replace such parts as are necessary to maintain the standards set by manufacturer (the warranty, new delivery preparation, school maintenance, and damage liability is to be taken into consideration).
4. The user of the vehicle has been notified before delivery that the car is to be used solely for official driver education purposes.
5. The user will be notified before the dealer performs repairs and/or services that are to be paid for by the user.
6. Inspection of the vehicle at termination of the loan will be accomplished jointly with the user, and the dealer will sign a statement that all obligations have been satisfactorily met.
7. The cost for installing and removing dual-controls shall not exceed $________.

Vehicle Identification No.	Manufacturer Invoice No.	Manufacturer Zone/Region	Date Loaned
Dealership Name	City	State	Dealer Code
Manufacturer Representative (Regional Manager)	*Date*	*Dealer Representative*	*Date*

Acknowledgment of Assignment

We acknowledge the assignment of the aforementioned vehicle and certify that the car being provided is entirely satisfactory for use in the state-approved driver education program and that it will be used solely for this purpose for the term, semester, or course beginning________ and ending________(minimum 90 days, except when single term sessions conducted only).

School, College, U.S. Military Installation, or Department of Education

City	State	Zip
Authorized Signature	*Title*	*Date*

School Responsibilities

The administrator of the aforementioned institution, whose signature appears herein, certifies the following:

1. All instructors are certified by the California State Department of Education or other designated authority.
2. The vehicle is properly identified by decals or signs to ensure that it can be recognized as a driver education vehicle.
3. The vehicle is properly insured with ______________________________, policy number______________,
   (Name of Company)
   in accordance with the manufacturer's requirements and all regulatory agency requirements. Insurance coverage includes:
   Public liability (minimum 100/300/10) ______________________________
   Medical payments coverage ______________________________
   Uninsured motorists ______________________________
   Comprehensive (fire, theft, and tornado) ______________________________
4. Vehicle use will be exclusively for teaching the laboratory phase of a state-approved driver education program by a qualified instructor. The vehicle will not be used for other than driver education purposes at any time. ***Failure to comply with this provision may result in immediate cancellation of this agreement.***
5. The vehicle will be returned to the dealer at the expiration of the period of this agreement or at the speedometer reading of________________ miles, whichever occurs first.
6. All vehicle maintenance will be accomplished to the satisfaction of the dealer, and the school will pay for all operational and maintenance expenses not covered by the warranty.
7. Garaging for the vehicle will be provided by the school to the satisfaction of the dealer.
8. The vehicle is licensed in accordance with state requirements.
9. The vehicle is equipped with such dual or special driving controls as are required by state regulatory agencies.

Driver Performance Record

________________ High school ________________ District

High school address ________________ Phone ________________

Course dates ________________ to ________________ Student's name ________________

Address ________________ Birth date ________________
City

Parent's name ________________

License no. Father ________________ Mother ________________

Record the number of hours spent driving:
a) With parents prior to starting in-car instruction ________
b) With peers and/or other adults prior to starting in-car instruction ________
c) Alone prior to starting in-car instruction ________
Hours (a, b, c) in: car____ truck____ tractor____ two-wheeled vehicle____ = *Total* ________

In the simulator program, the instructor will grade students within the following time intervals:
Section I – Between 40 to 55 minutes of in-car instruction time
Section II – Between 90 to 110 minutes of in-car instruction time
Section III – Between 145 to 165 minutes of in-car instruction time
In grading the three sections, place a check in the column which best indicates the student's level of performance.

INSTRUCTOR MUST CHECK EVERY ITEM

Section I *Basic Control Tasks*

A. Preparing to drive

Rating criteria: The student must perform all safety checks prior to starting the car.
3 points: Checks correctly without assistance.
2 points: One safety check not performed.
1 point : Requires assistance with two or more safety checks.

B. Starts, stops, and steering

Rating criteria: The student must observe the proper starting sequence and show reasonable dexterity in car control.
3 points: Performs tasks with no assistance.
2 points: Needs some assistance.
1 point : Two or more errors and requires help in car control.

	Performance rating *(use check only)*			
	3 points	2 points	1 point	
1. Adjusts seat forward or backward				
2. Adjusts rearview and side mirrors				
3. Fastens seat belt and shoulder harness				
4. Makes sure that all doors are closed and locked				
5. Places foot on the brake				
6. Releases starter key at proper time				
7. Places selector in drive				
8. Accelerates smoothly				Total Points Earned in Section I
9. Displays proper signal				
10. Brakes smoothly				
Total checks in each column				
Total points earned in each column				

Section II *Basic Maneuvers*

A. Lane changing

Rating criteria: The student observes the proper sequence in preparing for and executing a lane change.
3 points: Requires no assistance.
2 points: Requires some assistance.
1 point : Consistently requires the instructor's assistance in performing the maneuver.

	Performance rating (use check only)		
	3 points	2 points	1 point
11. Checks traffic in mirrors and over shoulder			
12. Displays proper signal			
13. Moves to passing lane when clear			
14. Accelerates properly			
15. Returns to lane when safe			

B. Turns

Rating criteria: The student uses appropriate signals, selects the proper lane, reduces speed, and starts and completes turns in the proper lane.
3 points: No assistance from the instructor.
2 points: Does not perform all operational and safety acts in proper sequence.
1 point : Difficulty in executing the turn and/or fails to respect another driver's right-of-way.

	3 points	2 points	1 point
16. Checks traffic			
17. Displays proper signal			
18. Positions car in proper lane			
19. Proceeds at safe speed			
20. Completes turn in proper lane			

C. Parking (angle)

Rating criteria: The student determines the suitability of a space, signals, prepares to park, and maneuvers the vehicle slowly into and out of the parking stall without bumping the curb or other vehicles.
3 points: Performs the maneuver with little or no assistance.
2 points: Instructor must give some assistance; driver either moves the car too fast or too slowly.
1 point : Considerable difficulty in entering and leaving a parking space; bumps the curb and does not position the car properly.

	3 points	2 points	1 point	
21. Displays proper directional signal				
22. Positions car properly				
23. Checks for fender clearance				Total Points Earned in Section II
24. Stops before wheels touch curb				
25. Leaves parking space safely				
Total checks in each column				
Total points earned in each column				

Section III *Reacting to Traffic*

A. Blind intersections (uncontrolled)

Rating criteria: The student decelerates if necessary to 15 MPH or less, observes other traffic, covers the brake, and proceeds when safe.
3 points: Requires no assistance; observes proper speed and control.
2 points: Student must be reminded of a dangerous intersection and the need to observe extreme caution.
1 point : Does not recognize a blind intersection and fails to observe safety precautions; drives too fast.

	3 points	2 points	1 point
26. Decelerates gradually to 15 MPH or less			
27. Observes other traffic			
28. Removes foot from accelerator and covers the brake			
29. Proceeds when it will not interfere with cross traffic			

Section III ***Reacting to Traffic (continued)***

B. Speed control and following distance

Rating criteria: The student regulates speed according to conditions and maintains proper distance from vehicle ahead.

3 points: Exercises excellent judgment in speed control and estimation of distance.

2 points: Requires an occasional reminuer of proper speed control and safe following distance.

1 point : Does not observe the basic speed rule; requires constant reminders to adjust speed.

	Performance rating (use check only)		
	3 points	2 points	1 point
30. Adjusts speed to the flow of traffic			
31. Observes the proper following distance			
32. Checks speed periodically			
33. Observes roadway and traffic ahead to anticipate stops			

C. Perception of hazards and driving foresight

Rating criteria: The student constantly observes road conditions, is aware of potentially dangerous situations, and regulates speed accordingly.

3 points: Performs the driving task with a minimum of instructions.

2 points: Instructor must alert the driver to possible hazards and must occasionally use the dual brakes.

1 point : Student requires considerable instructor assistance; does not anticipate possible emergencies; requires constant reminders about driving speed.

	3 points	2 points	1 point
34. Decelerates in ample time to avoid emergency stops			
35. Watches for unusual traffic conditions			
36. Observes traffic, front and rear, before passing			

D. Left and right turns in moderate traffic

Rating criteria: The driver must exercise considerable skill in determining when it is safe to turn in moderate traffic; driver must correctly judge the speed and distance closure rate of oncoming cars.

3 points: Student decides when it is safe to turn and executes left and right turns without assistance.

2 points: Instructor must help the student decide the proper time and place to start and execute turns.

1 point : Instructor must make the final decision; two or more errors are evident while executing the turn.

	3 points	2 points	1 point	
37. Places vehicle in proper lane for turn				
38. Estimates distance and speed of approaching vehicle				**Total Points Earned in Section III**
39. Completes the turn safely				
40. Yields right-of-way when appropriate				
Total checks in each column				
Total points earned in each column				
				Total Points Earned for All Sections

Student's average score can be determined by:

_______________ ÷ 40 = _______________

Total points earned for all sections **Average score**

Additional information:

Student was involved in the Parent Participation Program. *Yes*_____ *No*_________

Estimated total hours of driving with parental or adult supervision_____________

CALIFORNIA STATE
DEPARTMENT OF EDUCATION
FORM NO. J-22.2A (Rev. 1-75)

(For State Use Only)

DRIVER TRAINING COST DATA REPORT - 1974-75

_______________ District _______________ County, California

E.D.P. No.		Number Regular Students Only 1	Handicapped Students Only 2
	PUPIL/EMPLOYEE DATA		
1.	Enrollment..	XXXXXXXXXXXXX	XXXXXXXXXXXXX
2.	Number of Pupils Instructed..............................		
	(Lines 3, 4 and 5 not applicable--See Instructions)		
	DIRECT COSTS		
6.	Certificated Salaries..................................		
7.	Classified Salaries....................................		
8.	Employee Benefits......................................		
9.	Books and Supplies.....................................		
10.	Equipment Replacement		
	a. Replacement Cost of Vehicles and/or Simulators (From J-22.2B, Part D-5)........................		
	b. Other Replacement Expense...........................		
	c. Total Equipment Replacement (Total of a and b).....		
11.	Contracted Services....................................		
12.	Other Operating Expenses...............................		
13.	Subtotal (Lines 6, 7, 8, 9, 10c, 11 and 12)...........		
14.	Capital Outlay...	XXXXXXXXXXXXX	XXXXXXXXXXXXX
15.	Total Direct Costs (Lines 13 and 14)...................		
	DIRECT SUPPORT CHARGES		
16.	Instructional Administration Media and School Administration, Less 6000.................................		
17.	Special Projects, Less 6000............................	XXXXXXXXXXXXX	XXXXXXXXXXXXX
18.	Pupil Services, Less 6000..............................	XXXXXXXXXXXXX	XXXXXXXXXXXXX
19.	General Support, Less 6000.............................		
20.	Subtotal (Lines 16 through 19).........................		
21.	Capital Outlay for Direct Support Charges (Lines 16, 17, 18 and 19)......................................	XXXXXXXXXXXXX	XXXXXXXXXXXXX
22.	Auxiliary Services.....................................	XXXXXXXXXXXXX	XXXXXXXXXXXXX
23.	Total Direct Support Charges (Lines 20, 21 and 22)....		
	(Lines 24 through 31 not applicable--See Instructions)		
32.	Total Cost of Program (Lines 15 and 23)...............		
33.	Total Current Expense for Program (Lines 13 and 20)...		
	COMPUTATION OF EXCESS EXPENSE ALLOWANCE		
A.1.	Maximum Allowance Regular Pupils $60 times Pupils Instructed (Line 2, Column 1)........................		XXXXXXXXXXXXX
2.	Maximum Allowance Handicapped Pupils $200 times Pupils Instructed (Line 2, Column 2).........................	XXXXXXXXXXXXX	
B.	Allowance for Replacement Cost of Vehicles and/or Simulators (From J-22.2B, Part E-5 or F).................		XXXXXXXXXXXXX
C.	Allowance (Lesser of Lines 33 or A-1 and/or 2 plus Line B for Columns 1 and 2)...........................		
D.	Adjustment for Prior Year (E.C. 17301.3(b))		
1.	Increase...		
2.	Decrease...		
E.	Total Amount Allowed (Line C plus Line D-1 or minus Line D-2)..		

F. TOTAL ALLOWED FOR ALL DRIVER TRAINING (Line E, Columns 1 and 2)... $

CERTIFICATIONS

TO COUNTY SUPERINTENDENT OF SCHOOLS:

I HEREBY CERTIFY that, to the best of my knowledge and belief, this report is true and correct and has been compiled in accordance with all instructions.

By______________________________

Date____________________ Title______________________________

TO THE SUPERINTENDENT OF PUBLIC INSTRUCTION:

I HEREBY CERTIFY that, to the best of my knowledge and belief, that this report is true and correct and has been compiled in accordance with all instructions.

By______________________________

Date____________________ Title______________________________

INSTRUCTIONS FOR COMPLETING THE DRIVER TRAINING COST DATA REPORT

1. COST DATA REPORT, WHO MAY FILE. District Superintendents of Schools, County Superintendents of Schools, the California Youth Authority, and the State Department of Education should file this report to claim an allowance for expenses incurred in conducting driver training classes for pupils who were at least fifteen years and six months of age but not more than eighteen years of age when they enrolled in driver training.

   School districts shall prepare the Cost Data Report in triplicate, filing the original and one copy with the County Superintendent of Schools. The County Superintendent of Schools shall forward the original to the Bureau of School Apportionments and Reports, California State Department of Education, 721 Capitol Mall, Sacramento, California 95814, not later than August 1.

   Other eligible agencies that are claiming an allowance will file an original copy with the Bureau of School Apportionments and Reports.

2. WORKSHEET FOR COST DATA REPORT. A worksheet for the Cost Data Report will be completed at the same time as the Cost Data Report is prepared. The worksheet is not to be forwarded to the State Department of Education but will be retained, attached to the Cost Data Report, in the District and County Files for purposes of inspection and audit as required.

3. SPECIAL INSTRUCTIONS FOR COST DATA REPORT. The Driver Training Cost Data Report follows the formula as illustrated in Exhibit I-E, Page I-12, of the California School Accounting Manual, 1973 edition, except that for this report form, Items 3 through 5 of Pupil-Employee Data and Items 24 through 31 of Direct Support Charges are not applicable.

   A. Pupil/Employee Data
      1. Enrollment--Enrollment Data not required.
      2. Number of Pupils Instructed--Enter the number of pupils who have completed the maximum requirements of a course in instruction in automobile driver training as stated in Education Code Section 18252.3 and 18252.4. Data pertaining to regular pupils only in Column 1 and data pertaining to physically handicapped only in Column 2.

   The following definitions apply to the type of training and legal provisions pertaining to this report.

   Automobile Driver Training means that type of instruction which has as its purpose the development of knowledge, attitudes habits, and skills necessary for the safe operation of motor vehicles, including behind-the-wheel driver training and observation in a dual-control automobile. Do not fail to distinguish between automobile driver training (in automobiles) and automobile driver education (in classrooms); pupil and expenditure data relating to the latter shall not be included in this report.

   Special Classes include, classes providing automobile driver training for pupils who may be excused either in small numbers from regular classes and other approved classes, or at such time as may be determined by the governing board. The governing board of any school district authorised to maintain automobile driver training classes may conduct such classes on Saturday, during summer vacation, Christmas and Easter vacations, and when schools are not in session (Education Code Section 5206).

   Legal provisions relating to automobile driver training and allowances from the State School Fund for excess expense therefor are contained in Education Code sections 1018, 1085, 5208, 17305, 17305.7, 17405, and 18251 through 18255 (Stanley Driver Education and Driver Training Law); 12507 of the Vehicle Code; and California Adminstrative Code, Title 5, Education, sections 10040 through 10044.

CALIFORNIA STATE
DEPARTMENT OF EDUCATION
FORM NO. J-22.2A-W (New 1-75)
INSTRUCTIONS

SPECIAL INSTRUCTIONS FOR WORKSHEET FOR DRIVER TRAINING COST DATA REPORT

The worksheet is provided with the Cost Data Report for the purpose of assisting school district personnel in gathering costs related to the report. Either this worksheet or complete supporting information comparable to that on the worksheet is required for each school district in preparation of the Cost Data Report. The worksheet on the comparable data is to be filed in the school district office together with the Cost Data Report and be readily available to the school district independent auditor, the county superintendent, or the State for audit purposes as may be required.

DIRECT COSTS

6. Certificated Salaries

a. Teachers' Salaries (1100)

Include certificated teacher salaries assigned full-time to the Driver Training Program. Also a portion of teacher salaries serving part-time in the program.

b. Supervisors' Salaries (1300)

Include the full-time salaries and prorated portions of salaries of certificated personnel engaged in the supervision of instruction. Do not include School Administrators' Salaries.

c. Enter total of Certificated Salaries (a plus b) on Line 6 of Cost Data Report.

7. Classified Salaries

a. Instructional Aides (2100)

Include salaries paid to Instructional Aides for direct teaching assistance whose duties are required to be performed under the supervision of a classroom teacher.

8. Employee Benefits

Include all expenditures for employers' contributions to retirement plans and for Health and Welfare Benefits for employees whose salaries are included in Items 6 and 7 above.

9. Books and Supplies

a. Instructional Supplies

Include expenditures for all supplies used in the driver training instructional program by pupils and teachers.

b. Other Supplies

c. Instructional Media Materials and Supplies

Include film for Drivo-trainers and any other instructional media supplies.

10. Equipment Replacement

a. Replacement Cost of Vehicles and/or Simulators

Enter the replacement cost of vehicles or simulators as computed on Supplemental Report Form J-22.2B.

b. Other Replacement Expense

Record expenditures for articles of instructional equipment, other than vehicles or simulators, that are replaced on a piece-for-piece basis.

c. Enter total of a and b.

11. Contracted Services

Include the cost of leasing or renting of Drivo-trainers and vehicles used in the instruction of behind the wheel driver training.

NOTE: Do not include payments for lease purchases or leases with option to purchase as such expenditures are considered capital outlay and not reimbursable under this program.

12. Other Operating Expenses

a. Include cost of travel and conferences and other expenses for which teachers and instructional aides in program are reimbursed.

b. Include the cost of pupil insurance directly connected with driver training.

13. Subtotal

Total of lines 6 through 12.

14. Capital Outlay

No capital outlay costs may be listed for state reimbursement.

15. Total Direct Costs

Total of lines 13 and 14.

DIRECT SUPPORT CHARGES

16. Instructional Administration, Media and School Administration

a. Certificated Salaries

(1) Supervisors' Salaries (1300)

Record full-time and pro-rated portions of salaries of personnel engaged in the supervision of driver training instruction, including Department Chairmen. The salaries of supervisory personnel engaged in the supervision of instruction of driver training, who also teach driver training part-time, should be prorated between direct and direct support charges.

b. Classified Salaries

(1) Clerical and Other Office Personnel

Include salaries, full-time and part-time of Clerical Personnel engaged in assisting Supervisory Personnel in the driver training program.

DIRECT SUPPORT CHARGES (CONCLUDED)

16. Instructional Administration, Media and School Administration (Concluded)
    - c. Employee Benefits

      Record all expenditures for employers' contibutions to retirement plans and for Health and Welfare Benefits for supervisory and clerical employees whose salaries are included in Items a(1) and a(2) above or their dependents and retired employees.
    - d. Books and Supplies
      - (1) Instructional Media Supplies

        Include expenditures for all supplies used in the supervision and training of instructors in the driver training program.
      - (2) Other Supplies

        Record expenditures for office supplies used by clerical and other personnel who are employed in the offices of Supervisors of the driver training program.
    - e. Equipment Replacement

      Record the cost of replacement of equipment used in offices of Certificated Supervisory and Classified Personnel employed in the driver training program.
    - f. Other Operating Expenses
      - (1) Travel, Conferences and Other

        Include expenditures for travel and conferences and miscellaneous employee reimbursements relating to the driver training program.

Lines 17 and 18 of Cost Data Report are not applicable to Driver Training

19. General Support
    - a. Certificated Salaries

      None to be included in Support.
    - b. Classified Salaries
      - (1) Clerical, Other Office (2300)

        Includes full-time, part-time and prorated salaries of clerks, secretaries and other staff performing tasks specifically involved with driver training.
      - (2) Maintenance and Operational (2400)

        Includes full-time, part-time, and prorated salaries of mechanics and other personnel engaged in the maintenance and repair of driver training automobiles and Drivo-trainers. The salaries of custodians engaged in housekeeping duties for buildings etc. where driver training vehicles and Drivo-trainers are stored or housed.
    - c. Employee Benefits

      Record all expenditures for employers' contributions to retirement plans and for Health and Welfare benefits for Direct Support employees whose salaries are included in Lines 19b(1) and (2) above or their dependents and retired employees. Items 1 through 6 are self explanatory.
    - d. Books and Supplies
      - (1) Other Supplies (4500)

        Record purchase of supplies for maintenance and repair of equipment and buildings where vehicles and Drivo-trainers are housed. The cost of parts and supplies actually used should be reported.
    - e. Equipment Replacement

      Replacement of Maintenance and Operation equipment other than instructional used in the driver training program.
    - f. Contracted Services
      - (1) Contracts, Rents and Leases

        Include payments for rentals or leasing of equipment and buildings to house equipment. Include contracts for maintenance and housekeeping services and other services performed for driver training program.

        NOTE: No payments, including interest, if any, related to leases or rentals with option to purchase shall be included for state reimbursement purposes.
    - g. Other Operating Expenses
      - (1) Include insurance on maintenance and operation driver training equipment for Fire and Theft.
      - (2) Include liability insurance against losses from property damage or public liability of driver training program.
      - (3) Utilities and housekeeping services

        Record expenditures for water, fuel, light, power, telephone, waste disposal and other expenditures falling into this category for driver training program.

CALIFORNIA STATE
DEPARTMENT OF EDUCATION
FORM NO. J-22.2A-W
(New 1-75) WORKSHEET FOR DRIVER TRAINING COST DATA REPORT

Account Title	Amount	
	Regular Students Only	Handicapped Students Only
DIRECT COSTS		
6. Certificated Salaries		
a. Teachers' Salaries (1100)		
7. Classified Salaries		
a. Instructional Aides (2100)		
8. Employee Benefits (For Employees in Lines 6 and 7 above)		
a. STRS Annuity Fund (3100)		
b. Public Employees Retirement Fund (3200)		
c. OASDHI (3300)		
d. Health and Welfare, Teachers (3410)		
e. Health and Welfare, Others (3420)		
f. Unemployment Insurance Instructional Aides (3510)		
g. Workmen's Compensation Insurance (3600)		
h. Other Benefits (3900)		
i. Total Employee Benefits (Sum of Items a through h)		
9. Books and Supplies		
a. Instructional Supplies (4300)		
b. Instructional Media Materials and Supplies (4400)		
c. Other Supplies (4500)		
d. Total Books and Supplies (a + b + c)		
10. Equipment Replacement (4800)		
a. Replacement Cost of Vehicles or Simulators ____________		
b. Other Replacement Expenditures ____________		
c. Total Equipment (a + b)		
11. Contracted Services		
a. Contracts, Rents and Leases (5600)		
12. Operating Expense		
a. Travel, Conference and Other (For Personnel in Items 6 and 7 above)(5200)		
b. Pupil Insurance (5440)		
c. Total Other		
13. Subtotal (Lines 6a, 7a, 8i, 9c, 10c, 11a and 12c)		
14. Capital Outlay	XXXXXXXXXXXXX	XXXXXXXXXXXXX
15. Total Direct Costs (Total of Lines 13 and 14)		
DIRECT SUPPORT CHARGES		
16. Instructional Administration, Media and School Administration		
a. Certificated Salaries		
(1) Supervisors' Salaries (1300)(Including Department Chairman)		
b. Classified Salaries		
(1) Clerical and Other Office Personnel (2300)		
c. Employee Benefits (For Employees in Lines 16a(1) and 16b(1) above)		
(1) State Teachers' Retirement (3100)		
(2) OASDHI (3300)		
(3) Health and Welfare Certificated (3410)		

Account Title	Amount Regular Students Only	 Handicapped Students Only
DIRECT SUPPORT CHARGES (CONCLUDED)		
16. Instructional Administration, Media and School Administration (Concluded)		
c. Employee Benefits (For Employees in Lines 16a(1) and 16b(1) above) (Concluded)		
(4) Health and Welfare, Other (3420)...................		
(5) Unemployment Insurance, Others (3520)............		
(6) Workmen's Compensation Insurance (3600)..........		
(7) Other Benefits (3900)............................		
d. Books and Supplies		
(1) Instructional Media Supplies (4400)..............		
(2) Other Supplies (4500)............................		
e. Equipment Replacements (4800)......................		
f. Other Operating Expense		
(1) Travel, Conferences and Other (5200).............		
19. General Support		
a. Certificated Salaries..............................	XXXXXXXXXXXXX	XXXXXXXXXXXXX
b. Classified Salaries		
(1) Clerical, Other Office (2300)....................		
(2) Maintenance and Operational (2400)...............		
c. Employee Benefits (For Employees only in Lines 19b(1) and (2) above)		
(1) Public Employees Retirement Fund (3200)..........		
(2) OASDHI (3300)....................................		
(3) Health and Welfare Benefits, Other (3420)........		
(4) Unemployment Insurance, Other (3520).............		
(5) Workmen's Compensation Insurance (3600)..........		
(6) Other Benefits (3900)............................		
d. Books and Supplies		
(1) Other Supplies (4500)............................		
e. Equipment Replacement (4800)		
(1) Replacement of Other than Instructional..........		
f. Contracted Services		
(1) Contracts, Rents and Leases (5600)...............		
g. Other Operating Expenses		
(1) Fire and Theft Insurance (5410)..................		
(2) Liability Insurance (5420).......................		
(3) Utilities and Housekeeping Services (5500)........		
h. TOTAL GENERAL SUPPORT CHARGES (To Line 19 of Cost Data Report)...		
INDIRECT SUPPORT CHARGES (Items 24 through 31 not applicable)		
32. Total Cost of Program (Lines 15 and 19h).................		
33. TOTAL CURRENT EXPENSE OF PROGRAM (Lines 13 and 19h)......		

CALIFORNIA STATE
DEPARTMENT OF EDUCATION
Form No. J-22.2B (Rev. 2-75)

Report of Replaced Driver Training Vehicles or Simulators Used Exclusively for Driver Training

for the Period Beginning July 1, 19__, and Ending June 30, 19__

______________________ District ______________________ County

PART A. IDENTIFICATION OF VEHICLES OR SIMULATORS REPLACED AND ACQUIRED

Description and disposition (1)	Replaced equipment (2)	Acquired equipment (3)
NOTE: Answer questions pertinent to equipment replaced and purchased:		
1. Type of equipment (check one) ☐ Automobile ☐ Driver Training Simulator		
2. License number		
3. Engine number		
4. Name of manufacturer		
5. Name of vendor		
6. Date of purchase		
7. Purchased new or used ("N" if new, "U" if used)		
8. If used, state model year or year first sold		XXXXXXXXX
9. Sale of equipment		
(a) Date of sale		XXXXXXXXX
(b) Name of purchaser		XXXXXXXXX
10. Date converted for uses other than driver training		XXXXXXXXX

PART B. PURCHASE PRICE OF NEW OR ACQUIRED EQUIPMENT

(See Instruction 1.)

1. Cost of new automobile to district . . . . $__________
2. Cost of new simulator to district . . . . $__________

(Complete appropriate column.)

PART C. PERCENT OF REPLACEMENT EXPENSE ALLOWABLE	Automobile (miles)	Simulator (hours)
1. Total miles (or hours) equipment operated from date of acquisition		
2. Miles (or hours) equipment used for "other" purposes (including classes for adults)		
3. Allowable miles (or hours) (1. minus 2.)		
4. Percent of replacement expense allowable (3. divided by 1.)		

PART D. COMPUTATION OF REPLACEMENT EXPENSE	District entry	FOR STATE USE ONLY
1. Purchase price of old or replaced equipment. (See Instruction 7 if donated or transferred.)		
(a) Was this equipment purchased on a "Lease-Purchase" Agreement? Yes ☐ No ☐ (b) If so, were payments on the equipment claimed as "Current Expense" in any prior year? Yes ☐ No ☐		
2. Sales value or trade-in credit (See Instruction 7.)		
3. Replacement expense (1. minus 2.)		
4. Percent of replacement expense allowable (Enter appropriate percent from C-4.)		
5. Amount of replacement expense allowable (4. times 3.)		

PART E. COMPUTATION OF ALLOWANCE	District entry	FOR STATE USE ONLY
1. Current expense (Form J-22.2A Item 33)		
2. Allowance for pupils trained (Form J-22.2A lesser of Line 2, columns 1 and 2 times $60 or Line 33, columns 1 and 2)		
3. Amount subject to replacement computation (1. minus 2.)		
4. Replacement expense (D-5).		
5. Replacement allowance (75 percent of lesser of 3. or 4. above—enter in Item B, Form J-22.2A)		

NOTE: If vehicle or simulator was acquired on lease-purchase contract, complete Part F for portion allowable this year.

PART F. LEASE PURCHASE CONTRACT

If the new equipment was acquired on a lease-purchase contract, indicate length of contract and amount actually paid or to be paid each fiscal year.

	Payment on lease-purchase, including trade-in		Distribution of adjusted replacement expense for computation on this report — enter appropriate amount to Item B, Form J-22.2A.		FOR STATE USE ONLY
	(1) Fiscal year	Amount	(2) Fiscal year	Amount	
Previous payments	19____-____	$________	19____-____	$________	________
	19____-____	________	19____-____	________	________
	19____-____	________	19____-____	________	________
	19____-____	________	19____-____	________	________
Current payments	19____-____	________	19____-____	________	________
Future payments	19____-____	________	19____-____	________	________
	19____-____	________	19____-____	________	________
	19____-____	________	19____-____	________	________
	19____-____	________	19____-____	________	________
	Total payments	$________ (Must equal Part B, Line 1 or 2)	Total replacement expense	$________ (Must equal Part E-5)	________

INSTRUCTIONS AND GENERAL INFORMATION

1. **Section 17305 (c) of the Education Code** provides for an allowance for replacement of automobiles and/or simulators used exclusively in automobile driver training not to exceed 75 percent of the portion of such expense which is in excess of $60 multiplied by the number of pupils trained.
2. **Responsibility for Filing.** A separate report shall be filed by each district for each automobile or driver training simulator for which allowance is requested. The report shall be prepared in quadruplicate and attached to each copy of Form J-22.2A. "Driver Training Cost Data Report."
3. **Replacement.** Replacement is accomplished when the replaced equipment is disposed of and the new equipment is received in the district in the same fiscal year.
4. **Part A. Indicate type of equipment** by checking the appropriate box and enter applicable date in Column 2 or 3 for items 1 to 10.
5. **Part B. Purchase price of new or used equipment.** Enter the purchase price of equipment including expense of interest charges if purchased on a lease-purchase plan. If the new equipment is a gift to the district, the purchase price will be deemed to be the *fair market value.*
6. **Part C. Percent of Replacement Expense Allowable.** Allowable replacement expense will be based on the "miles" for automobiles, and "hours" for simulators, that the equipment was used exclusively for driver training purposes. Enter in 1, total miles or hours equipment is used for all purposes. Enter in 2, as a deduction, total miles or hours equipment is used for purposes other than driver training. Include as a deduction the miles or hours accumulated for "classes for adults," which are not reimbursable. Item 3 is the balance which is considered to be the miles or hours accumulated exclusively for driver training. Item 4 is the percent of replacement expense allowable to be entered in Part D, Item 4, and is computed by dividing Item 3 by Item 1.
7. **Part D. Computation of Replacement Expense.** The purchase price of replaced equipment is based on the original cost of the equipment less any trade-in or resale value. The trade-in or resale value of an automobile that is transferred to another department will be determined by an approved used car guide (Kelly Blue Book).

   NOTE: Although for accounting purposes (see *California School Accounting Manual*) the entire cost is charged to replacement, the state reimbursement program for such replacement sets the original cost of the replaced vehicle less the trade-in allowance as a maximum amount subject to the reimbursement formula.
8. **Part E. Computation of Allowance.** Compute allowance to be entered in B of Form J-22.2A. If payment on new equipment is to be made on the basis of a lease-purchase agreement, Part F should be completed. The computed allowance in 5 shall not exceed the amount entered in B-1 or 2.
9. **Part F. Lease-Purchase Contract.** If payment is made on the new equipment under a lease-purchase agreement, Part F should be completed. A percentage factor will be computed by dividing the allowance, Part D-5, by the cost of the equipment Part B, Item 1 or 2. This factor applied to the payment for the fiscal year will determine the portion of allowance that may be claimed for the particular year and entered in Part B of Form J-22.2A.

Wilson Riles
Superintendent of Public Instruction

CERTIFICATION BY GOVERNING BOARD

I hereby solemnly swear (or affirm) that I have been authorized by the governing board of the school district to prepare this certification and that to the best of my knowledge and belief this statement is true and correct and that it has been compiled in accordance with the instructions.

Governing Board of____________________________**School District**

[SIGNED]____________________________

____

(Type or print name of official)

Date__________________ **Title**____________________________

F74-85 DE 7537 2-75 2M

SELECTED REFERENCES

Books

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Glenn, Harold T. *Youth at the Wheel.* Peoria, Ill.: Charles A. Bennett Co., Inc., 1965.

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Allstate Insurance Company, Public Relations Director, 7447 Skokie Boulevard, Skokie, IL 60076

American Automobile Association Foundation for Traffic Safety, 1712 G Street, N.W., Washington, DC 20006

American Honda, Inc., P.O. Box 50, Gardena, CA 90247

American Lung Association, 1740 Broadway, New York, NY 10019

Association-Sterling Films, 866 Third Avenue, New York, NY 10022

Automobile Club of Southern California, P.O. Box 2890, Terminal Annex, Los Angeles, CA 90054

Bell Telephone Laboratories, 600 Mountain Avenue, Murray Hill, NJ 07974

California Air Resources Board, 1709 11th Street, Sacramento, CA 95814

California Highway Patrol Headquarters, Film Library, Room 234, 2611 26th Street, Sacramento, CA 95818

California State Automobile Association, Traffic Engineering and Safety Department, 150 Van Ness Avenue, San Francisco, CA 94101

California Traffic Safety Foundation, 660 Market Street, San Francisco, CA 94104

Charles Cahill and Associates, Inc., 5746 Sunset Boulevard, Hollywood, CA 90028

Chrysler Corporation, 341 Massachusetts Avenue, Detroit, MI 48231

Sid Davis Productions, 1418 North Highlands Avenue, Hollywood, CA 90028

Walt Disney Productions, 800 Sonora Avenue, Glendale, CA 91201

Edcom Productions, 285 West Sixth Street, Mansfield, OH 44902

Encyclopaedia Britannica Educational Corporation, 425 North Michigan Avenue, Chicago, IL 60611

Ford Motor Company, Motion Picture Department, 3000 Schaefer Road, Dearborn, MI 48124

General Motors Corporation, Public Relations Staff, General Motors Building, Detroit, MI 48202

Goodyear Tire and Rubber Company, Audio-Visual Department, Akron, OH 44316

Jam Handy Organization, 2821 East Grand Boulevard, Detroit, MI 48211

Highway Safety Foundation, P.O. Box 1563, Mansfield, OH 44901

Insurance Institute for Highway Safety, Harvest A-V, Inc., 309 Fifth Avenue, New York, NY 10016

International Harvester Company, 401 Michigan Avenue, Chicago, IL 60611

International Temperance Association, 6830 Laurel, Washington, DC 20012

Liberty Mutual Insurance Company, Public Relations Department, 175 Berkeley Street, Boston, MA 02117

Long Filmslide Service, 7505 Fairmount Avenue, El Cerrito, CA 94530

McGraw-Hill Book Company, 330 West 42nd Street, New York, NY 10036

Maryland State Department of Education, P.O. Box 8717, Baltimore, MD 21240

Modern Talking Picture Service, 1212 Avenue of the Americas, New York, NY 10036

National Audiovisual Center, Washington, DC 20409

National Safety Council, 425 North Michigan Avenue, Chicago, IL 60611

Pantheon Films, 43 West 61st Street, New York, NY 10023

Professional Arts, Inc., P.O. Box 8484, Universal City, CA 91608

Progressive Pictures, 1810 Francisca Court, Benicia, CA 94510

Shell Oil Company, Film Division, Public Relations, 50 West 50th Street, New York, NY 10020

Standard Oil Company of California, Public Relations Department, 225 Bush Street, San Francisco, CA 94120

University of California, Berkeley, Extension Media Center, Film Distribution, 2223 Fulton Street, Berkeley, CA 94720

U.S. Department of Transportation, Federal Highway Administration, 400 Seventh Street, SW, Washington, DC 20590

U.S. National Audiovisual Center, National Archives and Record Service, Washington, DC 20409

Volkswagen of America, Inc., 8118 Sylvan Avenue, Englewood Cliffs, NJ 07632

Western Insurance Information Service, 582 Market Street, San Francisco, CA 94104.

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Administration of Public School Transportation (1972) $1.25
Manual of First Aid Practices for School Bus Drivers (1972) $.50
Regulations and Laws Relating to Pupil Transportation (1975) $.50

Among the materials prepared for fire service training, the following may also be useful to persons interested in traffic safety:

Driver Training (1970) $2.50
Emergency Care of the Sick and Injured (1969) $2.00
Expressway and Freeway Emergencies (1970) $2.00

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